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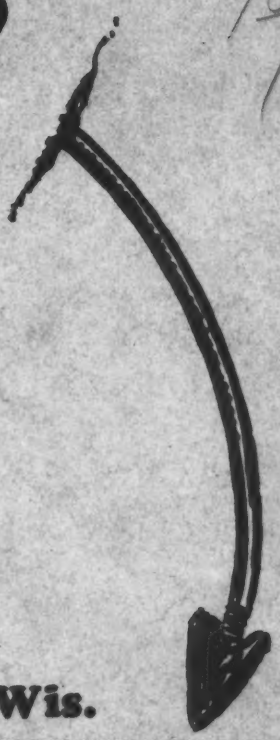
PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

Vol. LXXXV, No. 11 SEPTEMBER 15, 1927 Per annum $4.00 Per Copy 10 Cents

Why shouldn't you profit by "Beloit" too?



The judgment of long experience is the soundest. For five years some rather remarkable performances in papermaking have been established by the users of BELOIT UNIT REMOVABLE FOURDRINIER.

These "Beloit" Unit Removable users are enthusiastic in their praise of the exclusive patented "Beloit" features, to which they attribute increased quality production, greater speed, longer wire life, and tremendous savings in time, labor, power and money.

Read the enthusiastic testimony from the 41 actual users, actual proof of "Beloit" unit Removable performances. Send for Bulletin No. 9 giving all the facts.

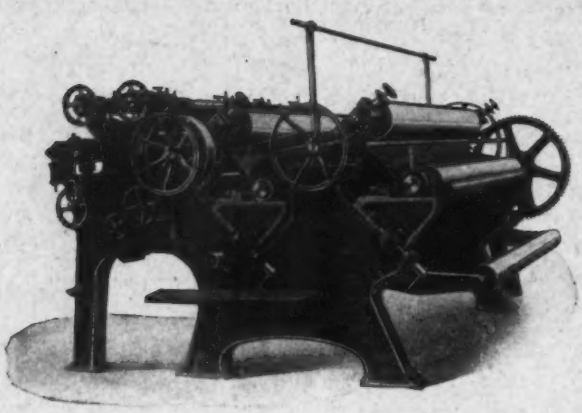
Unit Removable FOURDRINIER

[BELOIT PATENT]

Beloit Iron Works Beloit, Wis.

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.

Since 1858 Builders of Paper, Board Mill and Container Plant Machinery



Duplex Cutter with Revolving Slitter

The revolving or fly knives of this machine can be adjusted while the machine is running and without affecting the relation of the fly and bed knives, the sheet can be squared up.

The revolving type slitter permits one set of slitters to be in operation, while the other set is below and in position to be changed for succeeding order. The entire slitter can be moved sidewise to even the trim.

DOWNINGTOWN MANUFACTURING COMPANY
Paper and Pulp Mill Machinery
EAST DOWNINGTOWN, PA., U.S.A.

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SIXTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
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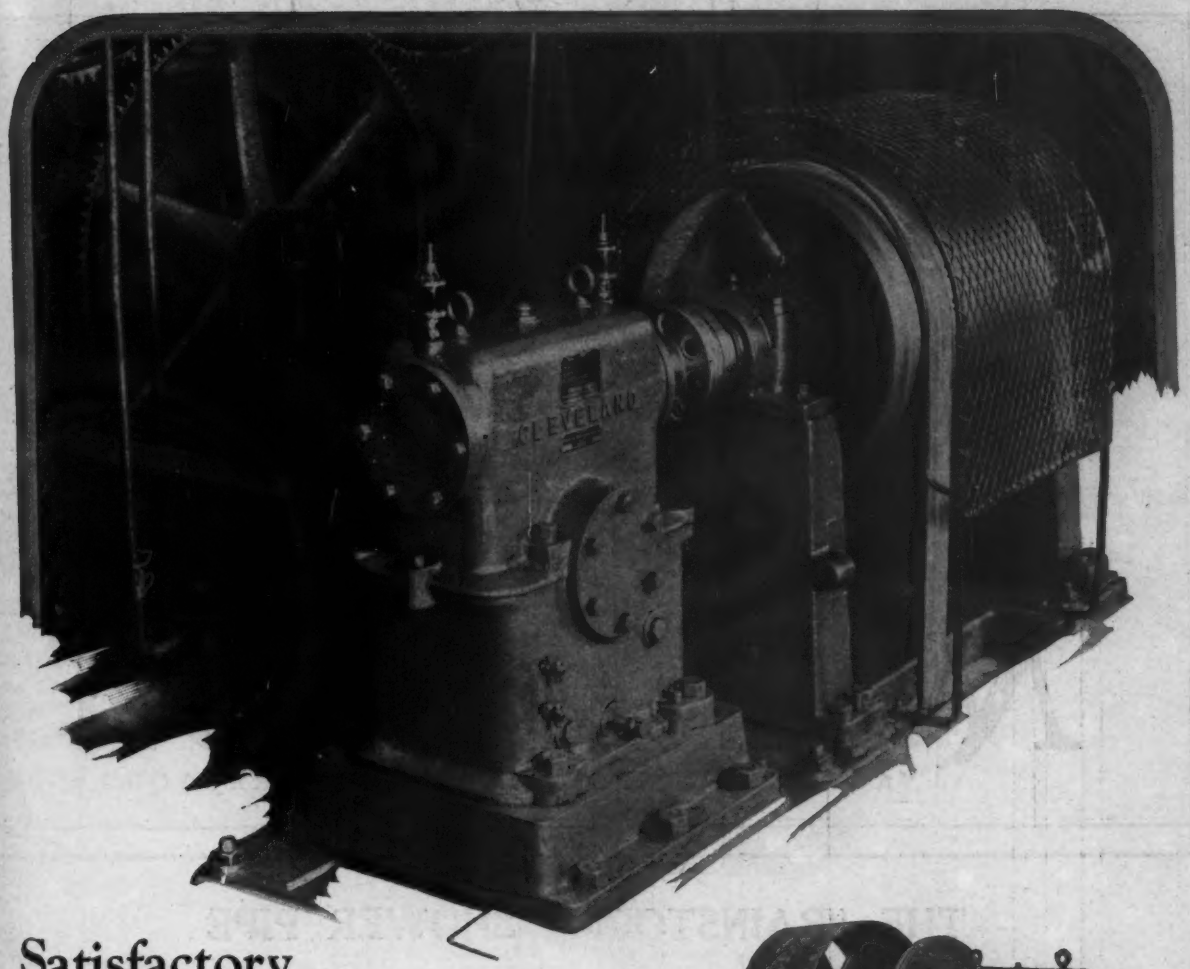


Satisfactory Power Transmission

Paper mill engineers need no longer be satisfied with ordinary service on drives for paper machinery. The Cleveland worm gear reduction unit meets all the requirements of paper and pulp mill operation, such as

1—Continuous operation with no production delays.
2—Low maintenance cost.
3—No repairs during years of service.
4—Uniform flow of power resulting in steady running without jerks or shocks.

Cleveland worm gears are running every kind of paper and pulp machinery in hundreds of plants throughout the United States and Canada. Solve your power transmission problems the Cleveland way.

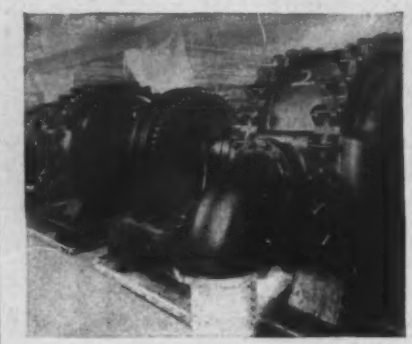
The very successful paper machine section drive illustrated above consists of a standard Cleveland worm gear unit mounted on a substantial cast-iron base with a ball-bearing countershaft, pulley and magnetic clutch. Ask your machine builder about the Cleveland drive.

- CANADIAN AGENTS -
Peacock Bros., Ltd., 1605 Delorimier Ave., Montreal, P. Q.

CLEVELAND WORM & GEAR COMPANY

3291 EAST 80th STREET CLEVELAND, OHIO

Suction is non-pulsating



Nash Hytor, motor driven.

ONE of the outstanding advantages of the Nash Hytor for removing water and air from felts, wires, suction rolls, and similar paper mill machinery is its non-fluctuating, non-pulsating suction. Dewatering of the pulp or paper is accomplished quickly, and with uniformly high efficiency year after year.

Because of its improved design and construction, the Nash Hytor requires a minimum power for operation. It is compact and effects a worth-while saving in space occupied.

Let our engineers give you the benefit of their recommendations for your particular requirements.

NASH ENGINEERING COMPANY

164 Wilson Road — So. Norwalk, Conn.

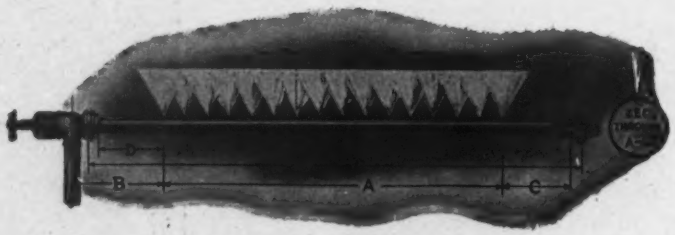
New England Representative
Mr. G. H. Gleason, Nottingham Bldg., Copley Square, Boston, Mass.

Western Representative
Mr. T. H. Savery, Jr., 80 E. Jackson Blvd., Chicago, Illinois.

Nash Hytor

VACUUM PUMPS AND COMPRESSORS

THE "RAINSTORM" SHOWER PIPE



MANUFACTURED BY

THE SMITH & WINCHESTER MFG. CO.

SOUTH WINDHAM, CONN.

ESTABLISHED 1828

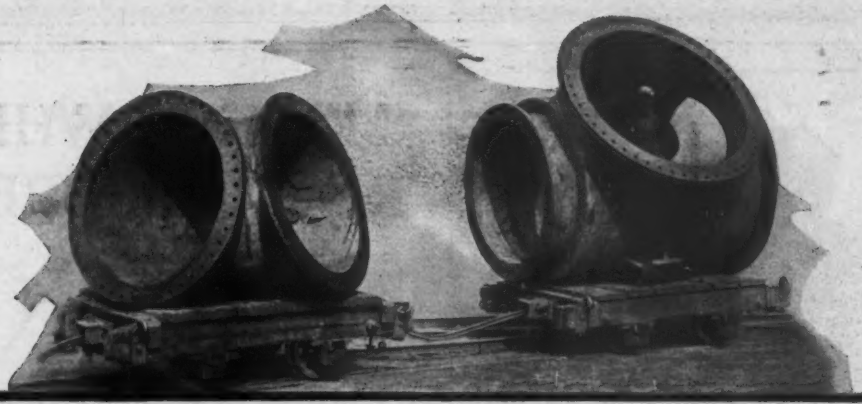
A Complete Line of Paper Bag Making Machinery

BUILDERS OF DEPENDABLE MACHINERY FOR

THE PAPER MILL

The Undercut Trimmer

Die Cutting Presses



Large standard fittings and special castings

In our various plants we have unusual facilities for handling the largest standard fittings and for making especially heavy castings.

WHILE standard connections should be adopted as far as possible, it sometimes happens that an exception has to be made to meet unusual conditions. When such conditions arise communicate with our nearest sales office. Our equipment is so complete that oftentimes the castings can be designed to fit equipment already available at one of our plants. This saves the cost and lessens delivery time.

Makers of deLavaud Centrifugal Cast Iron Pipe Patented

United States Cast Iron Pipe and Foundry Company

SALES OFFICES

Philadelphia: 1421 Chestnut St.
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Minneapolis: 6th St. & Hennepin Ave.
New York: 71 Broadway
San Francisco: 3rd & Market Sts.
Pittsburgh: 6th & Smithfield Sts.
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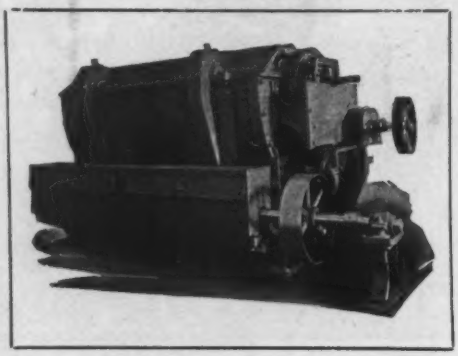
Kansas City: 13th & Locust Sts.

General Offices:
Burlington, New Jersey

1885



"MOORE & WHITE" ROTARY SCREEN

"Moore & White" Screens produce quality paper whether used on Tissues, Kraft, Roofing Manilas or Book Paper. Lumps and slime spots are eliminated. Breaks on paper are thus prevented and continuous operation is assured.

TONNAGE
CLEANLINESS
ECONOMY

THE MOORE & WHITE CO.
PHILADELPHIA, U. S. A.

CATALOG ON REQUEST

1927

SUPERIOR

ROSIN SIZE

SUPERIOR CHEMICAL

PRODUCTS

ROSIN SIZE

WAX AND SPECIAL WATERPROOFINGS

FOAM KILLERS

FELT SOAPS

SOAP POWDER

VEGETABLE TALLOW

CHEMICALS AND SERVICE

Twenty-two SUPERIOR Plants

The Most Extensive Organization of Its Kind in the World

Producing, Distributing and Servicing Chemical Products for the Pulp, Paper and Coating Trades

"There Is a SUPERIOR Plant Near You"

PRODUCTS

SATIN WHITE

ENGLISH AND DOMESTIC CLAYS

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CASEIN SOLVENTS

SOFTENERS

DRY & PULP COLORS

TURKEY RED OIL

Paper Makers Chemical Co.—Easton, Pa., Holyoke, Mass.
Western Paper Makers Chemical Co.—Kalamazoo, Mich., Pensacola, Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa.
Georgia-Louisiana Company, East Point, Ga., Marrero, La.
Superior Pine Products Company, Fargo, Ga., Tarver, Ga.
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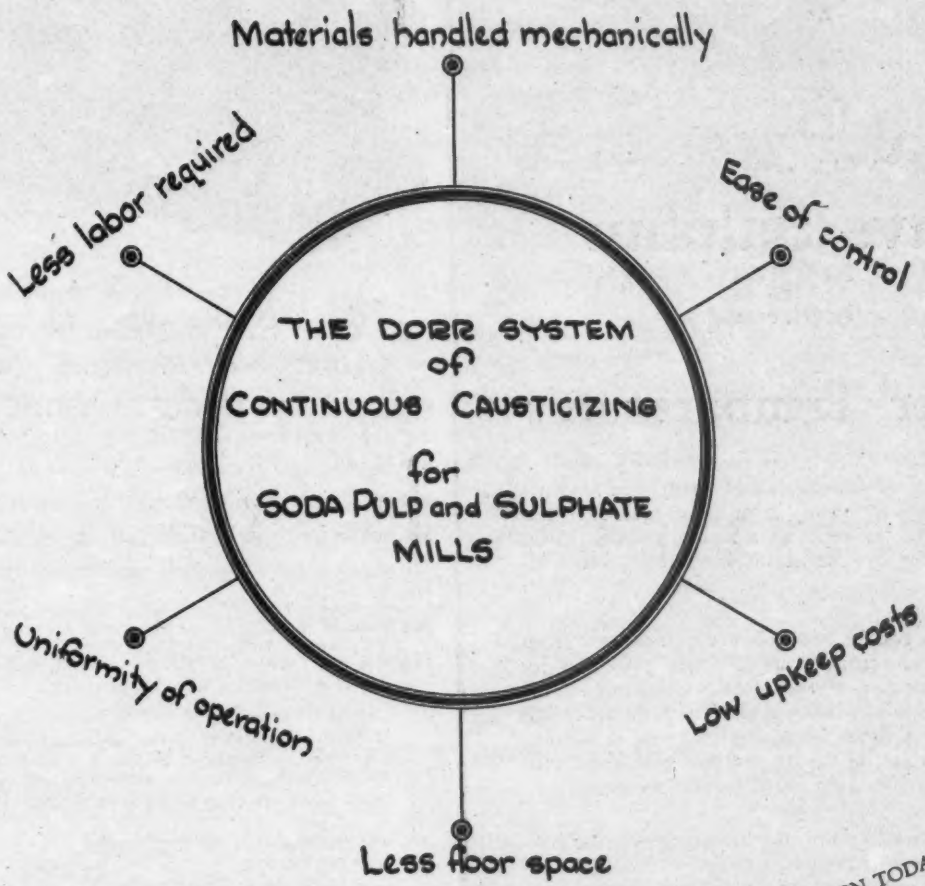
Adirondack Mineral Co., Carthage, N. Y.
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario.
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George S. Mepham Company, East St. Louis, Mo.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.

6 Points of Interest

to Soda Pulp and Kraft Mill Superintendents



MAIL THE COUPON TODAY

I am interested in Continuous Causticizing for . . Soda Pulp Mill / Sulphate Mill

Name_____

Address_____

City_____

State or Province_____

THE DORR COMPANY

ENGINEERS

247 PARK AVENUE NEW YORK CITY

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LOS ANGELES 108 W 6th St
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TORONTO 330 Bay St
DORR G.m.b.H. Joachimsthalerstr 10 Berlin W15

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SOC. DORR et CIE 126 Rue de Provence Paris 8

INVESTIGATION TESTS DESIGN EQUIPMENT

Bristol Pyrometers Save Sulphur

By Directing

Burner Temperatures

When making sulphurous acids, for use in sulphite digester cooks, a saving in sulphur will result if a careful check is kept on burning temperatures, and the proper degree maintained for good combustion.

Such a check can be secured very efficiently from the continuous temperature records provided by Bristol's Recording Pyrometers. Glancing at the records occasionally shows exactly how temperatures are, and have been running, thus cutting down the danger of under and over-heating, and insuring a consistently uniform quality acid.

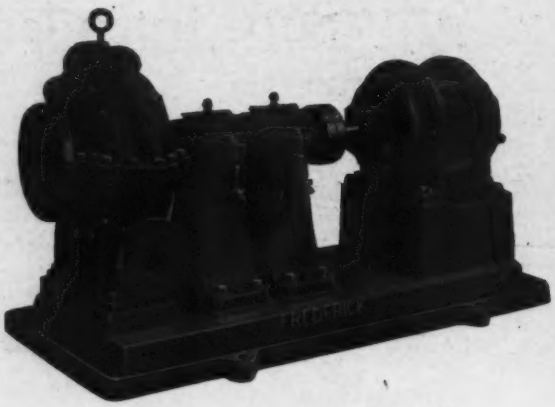
Bristol Pyrometers combine an extremely fine sensitiveness to temperature changes with a general ruggedness of construction; and have an excellent reputation throughout the pulp paper industry for "standing up" with maintained accuracy under the most adverse conditions.

Write for complete information.

The Bristol Company *Waterbury, Connecticut*

FOR 38 YEARS — MAKERS OF — BRISTOL'S — RECORDING INSTRUMENTS

FREDERICK CENTRIFUGAL PUMPS



If You Are Not Using Frederick Stock Pumps, Here's Something to Think About

How efficiently will your pumps handle 4% stock?

How efficiently will they handle 6% stock?

How often have you had mechanical trouble with them?

How good was their company's service on them?

How many delays have they caused, either through mechanical troubles or clogging?

If you can answer these questions, and then compare the results with the service records of Frederick Stock Pumps, we believe you will discover facts worth your while to know.

Our Standard Stock Pump handles stocks of consistencies up to 4% with excellent efficiency. Our Super-Stock Pump will efficiently handle 6% stock.

The Frederick Iron & Steel Company

FREDERICK MARYLAND

In Canada:
Dominion Engineering Works, Ltd., Lachine, Que.

IT PAYS TO GET THE BEST

Copyright 1926, by The Goodyear Tire & Rubber Co., Inc.

Paper mill men know that a belt has to have real stamina in it to deliver the goods on the Jordan drive or the beater machine. There are terrific loads to be carried.

It is a fact, too, that in this belt-trying service, that is the very heart of the flow, there are no belts with better records for powerful, trouble-free, long-lived performance than Goodyear Belts.

These qualities especially give Goodyear Belts their exceptional capacity for this strenuous duty. They are built strong and powerful, waterproof, and subject to a minimum of stretch and slippage. And they are specified to the job by the G.T.M.—Goodyear Technical Man.

The G. T. M. is an expert on belting. He is also well acquainted with the Belting requirements of your industry. In co-operation with your plant officials, he will be glad to analyze your drives and make recommendations that may save you money, time and belting trouble. You will find that any Goodyear Mechanical Rubber Goods that he may specify for your plant — Goodyear Belts, Hose, Valves and Packing — will give you most economical, efficient service.

For detailed information about the G.T.M., Plant Analysis Method or Goodyear Mechanical Rubber Goods, write to Goodyear, Akron, Ohio, or Los Angeles, Calif.

TRANSMISSION BELTS — *Thor, Goodyear, Klingtite, Glide*
CONVEYOR BELTS
HOSE—*Water, Steam, Washup, Fire and Mill*
PACKING—*Asbestos, Rubber Sheet* · PUMP VALVES

Goodyear Means Good Wear

GOODYEAR

Foxboro Instruments Save Fuel

Foxboro Recording Thermometer

(You may not have thought of this side of the story)

No doubt you are familiar with the fuel economies effected by the use of Foxboro Draft Gauges, CO_2 Recorders and other Boiler room instruments. But have you considered the savings in fuel possible through closer control of temperatures and pressures?

For instance, by installing Foxboro Recording Thermometers on the dryer rolls a large Eastern paper mill reduced the amount of coal consumed per ton of paper produced from 3,000 to 1,900 lbs. Foxboro Instruments in this case provided a constant check on drying efficiency, made possible a more uniform quality of paper **and** cut the company's coal bill 37 per cent!

Similar savings may be effected in **your** plant. Foxboro Engineers will be glad to discuss your problems with you. Our nearest office is at your service.

THE FOXBORO CO., *Inc.*

Neponset Avenue, Foxboro, Mass., U. S. A.

New York Chicago Philadelphia Boston Pittsburgh
Cleveland Detroit Tulsa Rochester Atlanta
San Frnacisco Los Angeles Portland, Ore.

Peacock Brothers, Limited, 1605 Delorimier
Montreal, Canada
944 Hastings St., Vancouver

Sole British Representatives: Walker-Crosweller & Co.,
58 Queen Elizabeth Street, London, S. E.

FOXBORO

REG. U. S. PAT. OFF.

THE COMPASS OF INDUSTRY

A Century's Fund Of Engineering Data and Experience

AVAILABLE FOR DESIGNING

WALDRON *Complete* FACTORY LAYOUTS

for Coated Paper and Wall Paper

Back of the designing, fabricating and installing of Waldron Complete Factory Layouts is this wealth of knowledge and experience—possessed by no other organization in the field—to provide absolute assurance of utmost efficiency and economy in layout, operation and maintenance of your machinery. With Waldron, the age of experimentation has long passed. It cannot prove expensive to you.

Coating and Embossing Machines, Surface and Intaglio Printers, Mixing Tanks, Brush Polishers, Gumming Machines, Festooners and Drying Machines, Rerolling Machines.

Inquiries of any nature regarding present or proposed factory layouts will receive our immediate attention. Write us. No obligation.

JOHN WALDRON CORPORATION

Main Office and Works—NEW BRUNSWICK, N. J.

208 W. Washington Street CHICAGO

30 East 42nd Street NEW YORK

Stop this (drip-drip-drip)

Armstrong's Corkboard Solves Most Condensation Problems

DRIP—a troublesome nuisance, and a source of costly damage to paper in process and in storage. Stop it by insulating your roofs with Armstrong's Corkboard.

Armstrong's Corkboard roof insulation keeps the cold from "coming through," and excepting under the most extreme conditions, holds the temperature of the ceiling surface far enough above the dewpoint to prevent sweating and consequent drip.

In the machine room and other parts of the plant where the air is often full of free moisture, it is not always possible to prevent drip entirely, but Armstrong's Corkboard, by keeping condensation on the ceiling at a minimum, improves conditions materially, and increases the efficiency of other means adopted to dispose of water vapor.

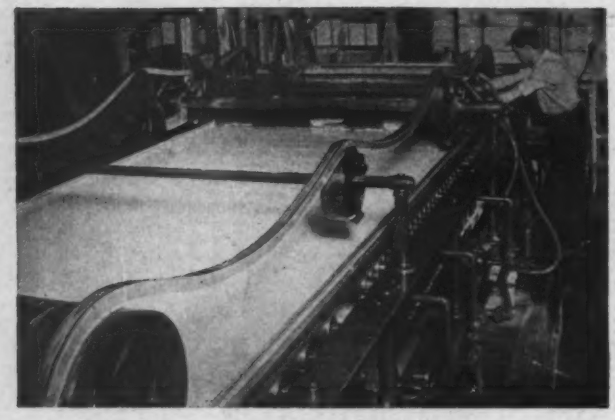
Insulating the roof with Armstrong's Corkboard is the most positive, practical, and economical means known for preventing or reducing condensation on ceilings. Armstrong's Corkboard is easily applied—simply laid on the deck in pitch or asphalt and roofing put down over it in the regular way. On existing buildings, Armstrong's Corkboard is laid right over the old roof.

Free Book on Roof Insulation

The results of years of experience in dealing with the condensation problem have been compiled and published in book form. You may have a copy for the asking. Write for "The Insulation of Roofs to Prevent Condensation." Armstrong Cork & Insulation Company, 217 Twenty-fourth Street, Pittsburgh, Pa.

Armstrong's Corkboard Insulation

for the Roofs of All Kinds of Buildings



Longer life to your felts!

MANY a good felt has had its length of service unnecessarily shortened by improper washing. The use of alkalies or soda ash tends to weaken or otherwise injure the fibres.

Longer felt life is invariably the rule in paper mills where washing is done the Oakite way. For Oakite cleans *safely*, removes every trace of dirt, sizing and other foreign matter without harming fibres in any way, rinses easily and completely, and leaves felts as soft and as absorbent as new.

Oakite washing will help you keep your felt expenditures at a minimum. Write us for details, or ask to have one of our Service Men call. No obligation.

Oakite is manufactured only by
OAKITE PRODUCTS, INC., 48A Thames St., NEW YORK, N. Y.
(Formerly OAKLEY CHEMICAL CO.)

Oakite Service Men, cleaning specialists, are located at:

Albany, N. Y.; Allentown, Pa.; Altoona, Pa.; *Atlanta; Baltimore, *Birmingham, Ala.; *Boston, Bridgeport, *Brooklyn, Buffalo, *Camden, N. J.; Charlotte, N. C.; Chattanooga, Tenn.; *Chicago, *Cincinnati, *Cleveland, *Columbus, Ohio; *Dallas, *Davenport, *Dayton, O.; Decatur, Ill.; *Denver, *Des Moines, *Detroit, Erie, Pa.; Flint, Mich.; Fresno, Cal.; *Grand Rapids, Mich.; Harrisburg, Pa.; Hartford, Houston, Texas; *Indianapolis, *Jacksonville, Fla.; *Kansas City, *Los Angeles, Louisville, Ky.; *Memphis, Tenn.; *Milwaukee, *Minneapolis, *Moline, Ill.; Montreal, Newark, N. J.; Newburgh, N. Y.; New Haven, *New York, *Oakland, Calif.; *Omaha, Neb.; *Philadelphia, *Pittsburgh, Portland, Me.; *Portland, Ore.; Providence, Reading, Pa.; *Rochester, N. Y.; Rockford, Ill.; *Rock Island, *San Francisco, *Seattle, *St. Louis, South Bend, Ind.; Syracuse, N. Y.; *Toledo, *Toronto, Trenton, N. J.; *Tulsa, Okla.; Utica, N. Y.; *Vancouver, B. C.; Williamsport, Pa.; Worcester, Mass.

**Stocks of Oakite materials are carried in these cities.*

OAKITE
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

ORR ENDLESS FELTS

The Orr felts are recognized as most important factors in the production of more and better paper at a lower cost per ton.

These felts are manufactured from wools carefully selected, covering a large experience in manufacturing.

Needless to say they insure satisfactory service.

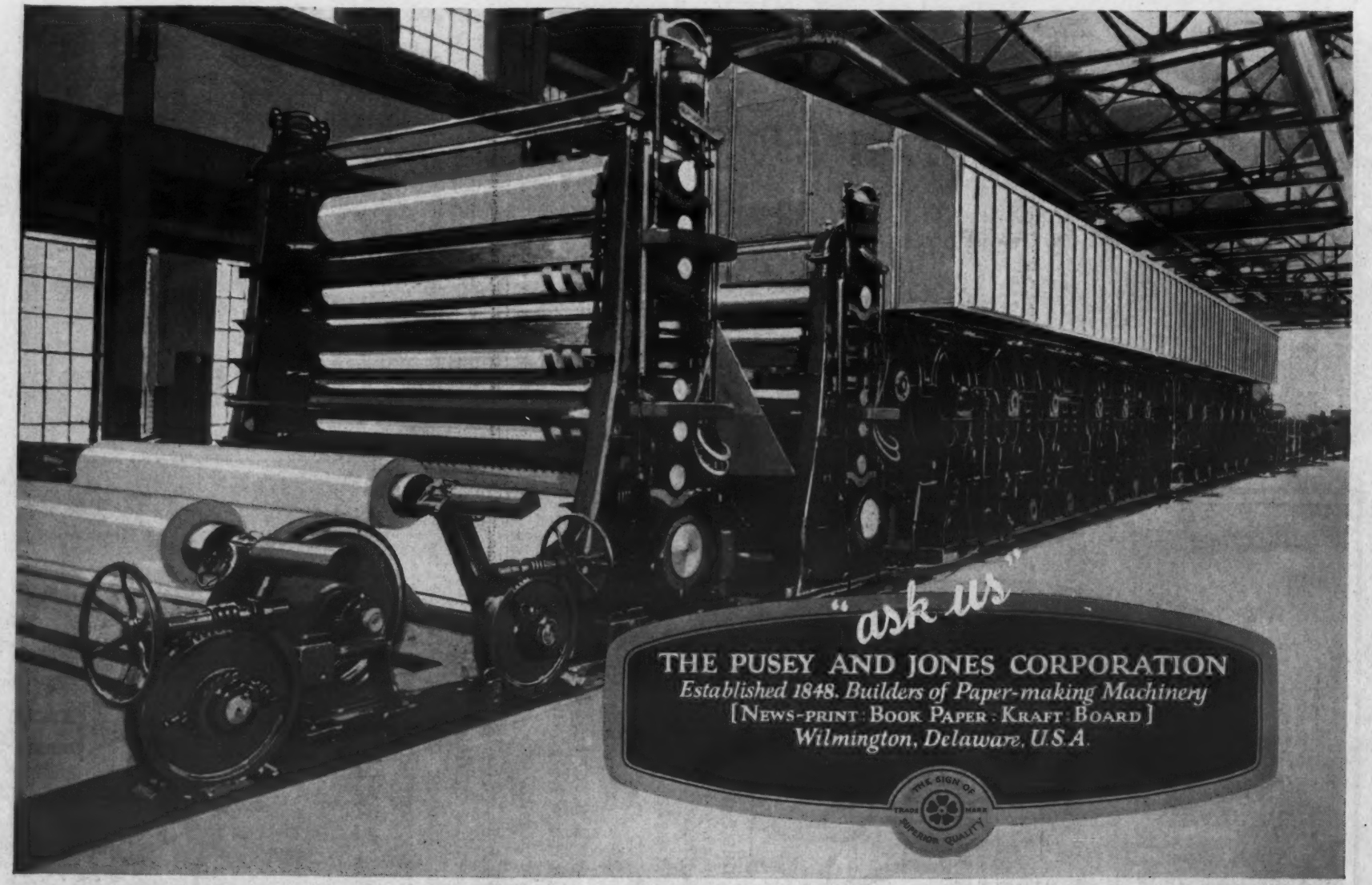
It is possible to weave these felts Endless up to eighty-six feet.

We request a trial, which will prove to your advantage.

Samples of grades required sent upon request.

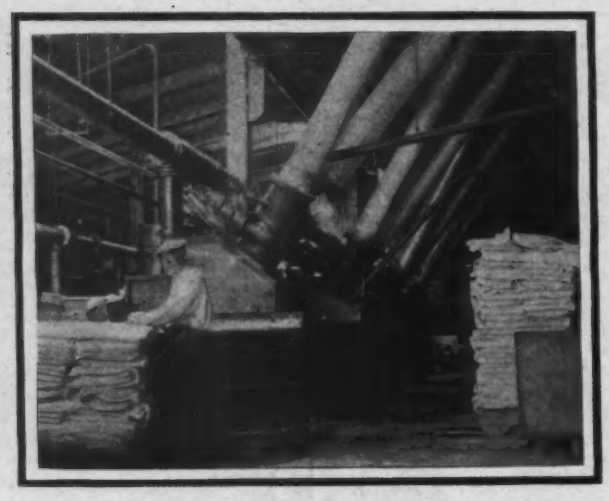
The ORR FELT & BLANKET COMPANY

Piqua Ohio


"ask us"
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
[NEWS-PRINT · BOOK PAPER · KRAFT · BOARD]
Wilmington, Delaware, U.S.A.
THE SIGN OF TRADE MARK SUPERIOR QUALITY

Illustrating the 152-inch Book Paper Machine designed and built by The Pusey and Jones Corporation for the Everett Pulp and Paper Company, Everett, Washington . . . This is the third Puseyjones Machine built for this company and is one of four Puseyjones Book Paper Machines built in 1926.

Entire contents of this advertisement copyrighted 1927 by The Pusey and Jones Corporation, Wilmington, Delaware, U. S. A.



Spiral Pipe conveying pulp stock to beaters. Minnesota and Ontario Paper Company, International Falls, Minnesota

Long Life

TAYLOR spiral riveted pipe has a double protection.

It is made of copper bearing steel, which greatly increases its resistance to rust. In addition, it is heavily covered both inside and out with a coat of hot galvanizing or hot asphalt, according to the service required.

Taylor spiral pipe has given years of service under conditions where other pieces of equipment have been completely destroyed.

Your request will bring a catalog full of information on Taylor pipe and Taylor flanges.

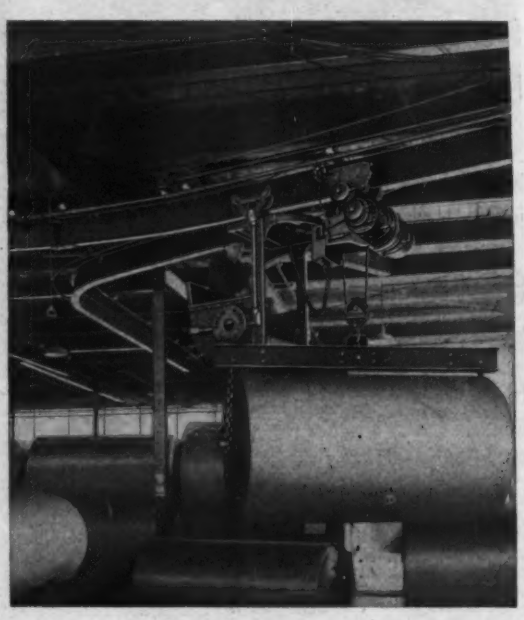
American Spiral Pipe Works

for 20 years the largest manufacturer of forged steel flanges

Main Office and Works:
Chicago, Illinois, P. O. Box 485
New York Office: 50 Church Street

TAYLOR *Spiral Riveted* PIPE

PTJ 9-15 Gray



Lifting loads to lower costs

Shepard's "Aerial Railway" enables one man to do the work of a gang—to do it quicker and with the precision that makes for top notch production.

This "Aerial Railway" consists of a Shepard cage operated electric hoist, operating on a Shepard Transfer Crane and monorail track with suitable switches.

A tightly sealed hoisting unit, balanced gear drive, automatic oil bath lubrication and permanent alignment are some of the Shepard features that assure consistent operation at all times.

Let us tell you more about this labor and time saving material handling method.

Write for our descriptive bulletin, Shepard "Aerial Railway of Industry."

SHEPARD ELECTRIC CRANE & HOIST CO.

378 Schuyler Avenue,
Montour Falls, N. Y.

Branches in principal cities.
Largest Manufacturers of Electric Hoists in America

SHEPARD
ELECTRIC CRANES & HOISTS

What Is That Roof Going to Cost You *Per Year?*

ARE you planning a new roof for your mill? Figure its cost on the plain-sense basis of ***years of service.*** Wet processing and high humidity play havoc with the ordinary mill roof. That is why mill men are becoming more and more "roof-conscious." They are looking over the shoulder of first cost—cost per year of service is entering in.

Why build a mill with permanent walls and floors and put in a roof that will rot out in eight years? Why not put on a "WOLMANIZED" roof that will last the lifetime of the mill? "WOLMANIZED" Lumber is of vital aid in giving a roof longevity. "WOLMANIZING" does add to the initial cost but it saves materially in the long run. The Wolman Salts employed are noted for their preservative qualities both here and abroad. "WOLMANIZED" Lumber ***is clean.*** The preservative is held in by unusual fixation qualities. This lumber provides an excellent base for mill white paint.

What do you want to know about "WOLMANIZED" Lumber? We shall gladly send further information.

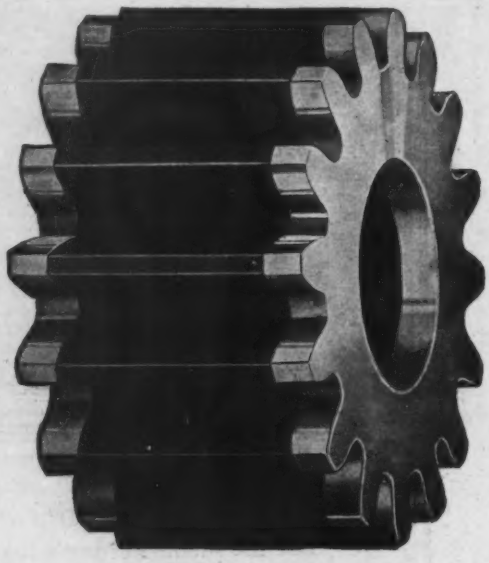
Samples furnished if desired.

AMERICAN WOLMANIZED LUMBER COMPANY
7 So. Front St., Elizabeth, N. J.

"WOLMANIZED LUMBER *DOES NOT DECAY"*

A few facts about "Wolmanized" Lumber

1. The characteristics of the wood remain unchanged.
2. The preservative "stays put" due to unusual fixation qualities.
3. A lower-cost lumber may oftentimes be specified.
4. Can be painted, varnished or stained.
5. Fire-retardant.
6. No discoloration that affects painting.
7. Treating operation flexible according to individual requirements.



Not only quieter but longer life— G- E. Fabroil

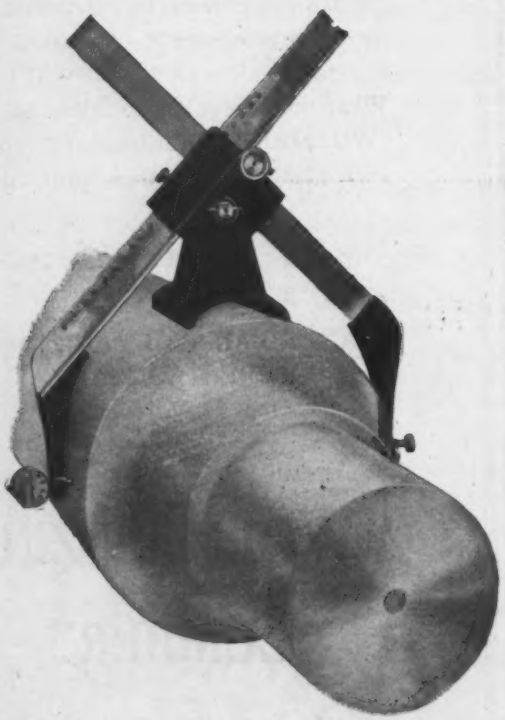
One-third stronger than other non-metallic pinions often means 300% more life. If you use noiseless pinions for maintenance, order Fabroil pinions and notice the difference. Makers of machinery are now using Fabroil because it means satisfied customers. They can not take chances. Just mark FABROIL and send to

The Horsburgh & Scott Co.

"Gear Makers Since '89"

5110 Hamilton Ave. **Cleveland, U. S. A.**

Gears for Every Industrial Purpose—Worm—Bevel—Herringbone—Spur—Spiral—Hardened Heat Treated Gears—Non Metallic Gears and Pinions



LOBDELL

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An indispensable instrument to the mill equipped to do its own regrinding and equally useful in every mill in keeping an accurate check on the condition of the calender and press rolls.

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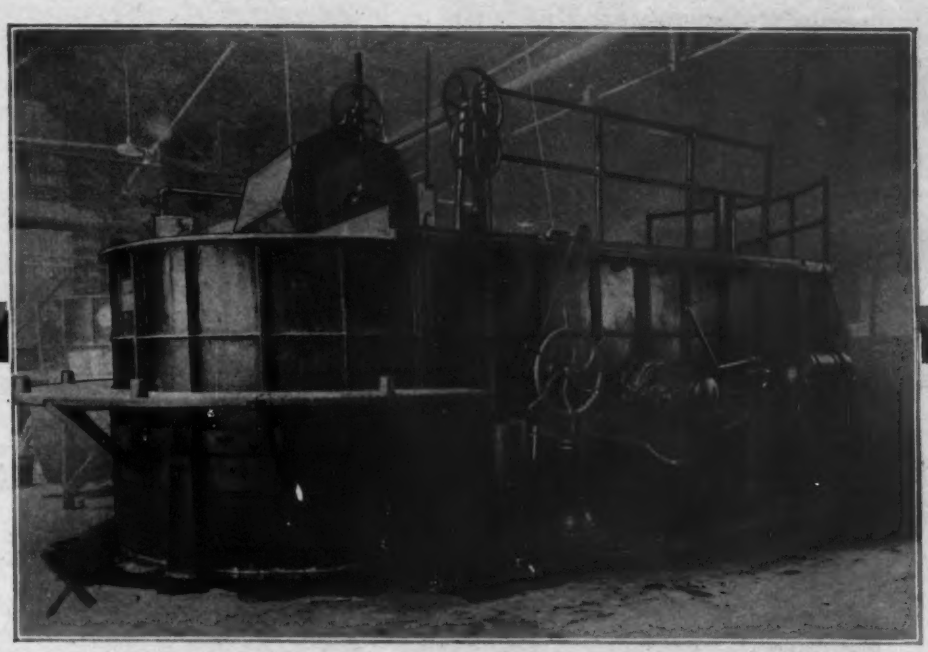
EASILY ADJUSTED
EXTREMELY ACCURATE

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.



Revolutionary in Design ...and Results

X

Stock furnished	100% kraft
Bone dry weight of stock furnished	4000 lbs.
Consistency of stock	7.4%
Floor area in sq. ft. (inside of beater)	240 sq. ft.
Lbs. of stock treated per sq. ft, area	28
Lbs. of stock beaten per H. P. hour	21.4
Actual beating time	35 min.

This new Noble & Wood high density beater is a producer from the word "go". It not only gives increased tonnage,—it produces a higher quality product and a lot more of it.

The record to the left was made in a mill where several standard 1500 lb. beaters were rebuilt to this type. These facts are taken from results shown in actual service; not a "stunt" performance, but regular daily production.

Here Are Some of the Reasons

1st. Beater capacity is tripled in the same floor space.

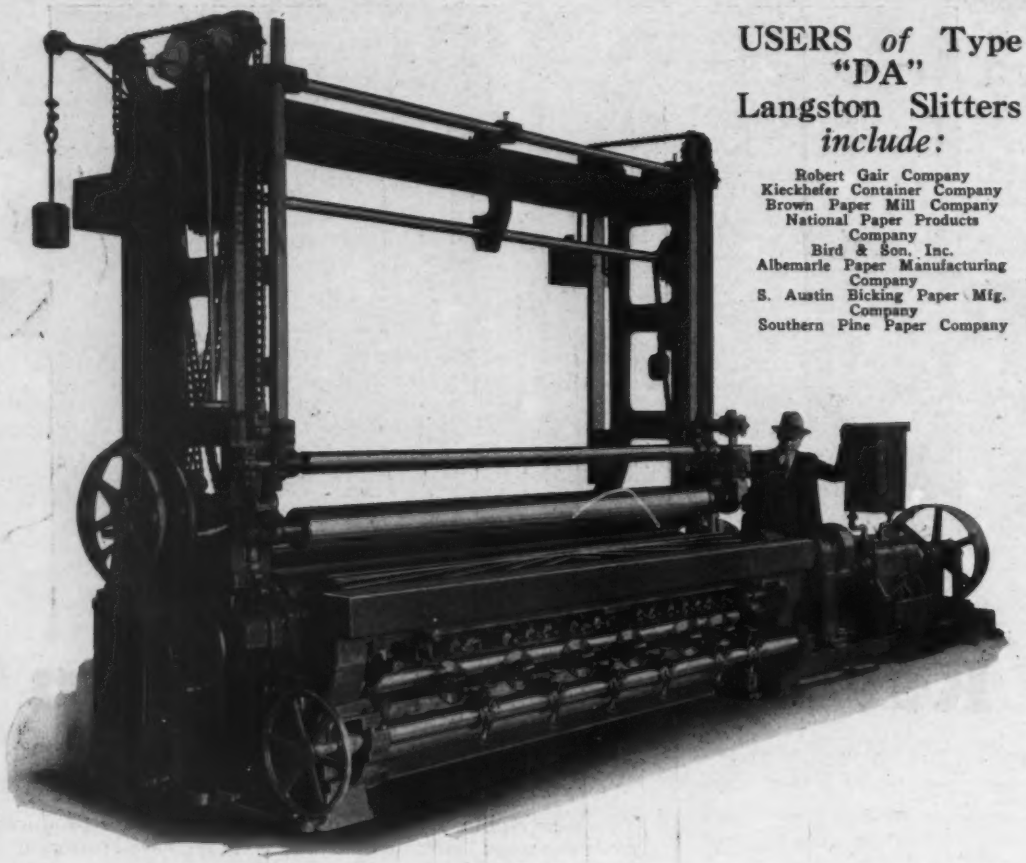
2nd. The rebuilt beaters handle stock of very heavy density as satisfactorily as the original beaters handled stock of light density.

3rd. It is possible to feed about three times as much stock in one beater furnish as in the original hollanders.

4th. This greatly increased quantity of stock receives more actual beating in an equivalent length of time,—and at a big power saving.

If you want greater production and better paper, write us. We can rebuild your beaters to this type, and in most cases, use your present tubs, rolls, bedplates and iron work.

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York



USERS *of* Type "DA" Langston Slitters *include:*

Robert Gair Company
Kieckhefer Container Company
Brown Paper Mill Company
National Paper Products Company
Bird & Son, Inc.
Albemarle Paper Manufacturing Company
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This is the machine we recommend *for strenuous service*

24-hour a day operation, speeds as high as 2000 feet a minute, maximum diameters,—are all in the days' work to the Langston Type "DA" Slitter shown above.

It is a strenuous duty machine, built big and heavy all around. The drums are 14" in diameter, are turned and bored, and carefully balanced. Cutter shafts, idlers, are generously proportioned; there are deep ribbed side frames, unusually heavy bedplate. Roller bearings wherever practicable, of course. Widths from 82 inches up to 165 inches and wider.

Like all Langston Slitters the "DA" has the Langston winding principle which insures hard-centered rolls of uniform density, and the Langston Shear-Cut which means rolls free of any trace of dust or lint.

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CLEAN SHEAR CUT CUT

LANGSTON SLITTERS

TRADE MARK
CAMACHINE
ROLL-WINDERS

Better Rolls—

Greater Production—

Trouble-Free Service—

A thoroughly efficient machine capable of slitting wide materials into a number of narrower widths or many narrow strips, is a valuable addition to modern factory equipment where rolls of paper or board of any kind are required in the manufacture of the articles there produced, or where material in roll form is produced for sale to others who utilize it.

May we tell you how CAMACHINES have kept pace with the needs of the paper industry, and how the right slitter and roll winder will save you money by speeding up production and cutting down waste? Just drop us a line.

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PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXV, No. 11 Thursday, September 15, 1927

Newfoundland Agrees to Corner Brook Deal

Legislature Finally Passes Two Measures, Whereby International Paper Co. Acquires Newfoundland Pulp and Paper Co. Properties—British and Newfoundland Governments to Grant Priority to International's Issue of $20,000,000 First Mortgage Bonds To Secure Success of Undertaking

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 12, 1927.—The Newfoundland Legislature has prorogued after passing two bills whereby the International Paper Company acquires existing paper mills at Corner Brook, on the west coast, and projected mills at Gander Valley, on the east coast. The former were owned by the Newfoundland Pulp and Paper Company, in which Armstrong, Whitworth & Co., the famous English engineering firm, held 51 and the Reid Company of Newfoundland 49 per cent of the capital stock. The mills, for the construction of which the original estimate was $20,000,000, of which the British and Newfoundland Governments each guaranteed half, actually cost, with accessories, nearly $50,000,000. Armstrong's provided the remainder through the Bank of England.

The enterprise showing heavy losses since the mills opened just two years ago, Armstrong's decided to quit, whereupon the Bank of England arranged for the sale of the property and the International agreed to purchase it subject to obtaining certain concessions from the Newfoundland Legislature, notably the right to export pulp wood for fifty years on the basis of half a cord for every ton of paper manufactured by new machinery which the International purposes installing here. Because the transfer of the property was really the result of a forced sale, Armstrong's and the Reid Company lost all their interests therein.

The Gander Valley project is also a subsidiary of the Reid Company, the concession for which enterprise originally passed the Legislature three years ago. No development resulted and the International acquires this charter also. It purposes establishing a mill there within the next few years, having obtained a concession similar to that at Corner Brook, including the export of pulp wood on the same basis.

Financial Proposals

The International has options upon both properties and it is understood will exercise them. The International's financial proposals regarding Corner Brook are to issue $20,000,000 first mortgage bonds, to which the British and Newfoundland Governments will grant priority to assist in insuring the eventual success of the undertaking.

Of this bond issue, $5,000,000 will be paid to the Bank of England, retiring the present first mortgage issue for that amount. The remainder is to be used as required for purchases of timber properties, etc.; the installing of new paper-making machines—with which the International purposes to start with two, possibly adding two more later—and for a proportion of working capital. This program will be started as soon as practicable.

Regarding Gander Valley, the financial program has not yet been worked out, as the company does not intend to build until the existing depression in the paper market terminates, but it undertakes to have two mills in operation by the end of 1933, unless exceptional conditions arise.

It is understood that the Reid Company receives a certain direct payment for the lands attaching to the Gander Valley enterprise and a profit-sharing agreement for operating the mills, but the details of this are not generally known.

Relief for Canadian News Print

That Great Britain may prove a source of relief for the threatened over-production of news print in Canada is the possibility held out by G. B. Johnson, Canadian Trade Commissioner in Glasgow. Writing to the Department of Trade and Commerce at Ottawa, he says that with the productive capacity of Canadian news print mills at 2,000,000 during the present year—double that of 1922—news print mills may now be more responsive to opportunities in an untapped market than formerly. He continues: "The industry's concentration on the North American market, to the virtual exclusion of Great Britain, which presents possibilities small and difficult in comparison, may have led it to under-estimate or ignore opportunities during expansion which would be welcome in a time when the demand is more easily satisfied. That is a difficulty. It is much harder to get business in a new market when needed than to nurse that market when it is not necessary except for future business.

"The imports into Great Britain of printing paper (including news) in 1925 were 184,000 tons. In 1921 the imports were 120,000 tons, and there was almost a steady increase each year in that period. Canada's contribution to the 1925 figure was 17,000 tons, which was a large increase over any recent year. Newfoundland sent 59,000 tons, Finland, 31,000, Sweden 29,000, Norway 36,000, and the Netherlands 7,500. British exports during 1925 were 117,200 tons, which is greatly in excess of any recent year. Nearly the whole of it went to Australia.

"Taking Scotland alone, the imports of paper and cardboard in 1925 were 59,800 tons. News print no doubt accounted for most of this figure. At Belfast the imports were 9,400 tons.

"There is no question of the quality of Canadian news print,

which is undoubtedly popular with the British publishers, and Canadian mills if they can supply it at competitive prices will nearly always have a preference over the Continental product. The Scandinavian is much cheaper than the British, the latter at the present time being £16-10s. a long ton d/d, while the Scandinavian runs from about £14 to £15, 5s. per ton c.i.f., which means that another 10 shillings has to be added for delivery. The British make, however, is more satisfactory than the Scandinavian, and is preferred by many of the leading firms. For instance, the paper used in printing three at least of the leading London papers (two daily and one Sunday) is of British make. These newspapers give heavier weights than most other newspapers and for a special finish are willing to pay £17 per ton. The present tendency is to limit supplies of foreign make as deliveries are very unsatisfactory. Quality also is often disappointing, but some newspapers for financial reasons prefer Scandinavian. From the Canadian point of view the question of delivery is vitally important. Newspaper offices as a rule have no storage accommodation, so that regular deliveries are absolutely essential."

Mr. Johnson goes into particulars regarding the requirements of various British publishing firms and quotes publishers' opinions to the effect that Canadian paper would be preferred "if the supply were regular, year after year, and not spasmodic as it has been in the past."

More Rumors of Paper Mergers

More rumors of possible paper mergers have been set afloat by strength during the past week in the securities of the Wayagamack and Brompton Companies. The past two years has seen much progress in the unification of operations through mergers and absorptions, and it has been stated in authoritative sources that within the next decade the field in Quebec will be narrowed down to three big organizations—International Paper, St. Maurice Valley, and Price Brothers. It is also believed that a similar concentration in the Ontario field will be brought about by the long-talked-of-merger between Abitibi and Spanish River, probably with the addition of Fort William Paper.

Third Unit in Operation

The third unit in the Farmers hydro-electric plant of the Gatineau Power Company, a subsidiary of the International Paper Company, has been turned over, and is supplying power to the Gatineau mill of the International Paper Company. The first unit was put in operation on May 8 and the second on July 2.

The Farmers' powerhouse is designed for five generators of 24,000 horsepower each of which four will be installed instantly. The fifth unit will be installed as soon as the demand for electric energy justifies it.

Three units of the Chelsea powerhouse of the company, a mile above Farmers, are also in operation, giving the company two plants in a total of six units operating on an aggregate capacity of 174,000 horsepower.

The Farmers' station utilizes a gross head of sixty-six feet, the natural head being augmented by a relatively low concrete dam built across the natural bed of the stream. The powerhouse on the east bank was erected on dry land, thus eliminating expensive coffer-damming operations.

Quebec Pulp Mills Deal

A special general meeting of the Quebec Pulp and Paper Mills, Ltd., has been called for October 3 in Montreal to consider, and if deemed advisable, to accept the offer of purchase submitted to the management of the company. This offer came jointly from John H. Price, president of Price Bros. & Co., Ltd., and George H. McKee, president of Port Alfred Pulp and Paper Corporation.

In their letter on behalf of the board Messrs. McNichols and Raymond, say: "Your directors are unanimous in recommending acceptance of this offer and consider that same contains the best terms that could be obtained under the present circumstances."

Terms of the proposed purchase have already been submitted to the shareholders, and these comprise alternative offers which they may accept. Briefly stated, it is proposed to form a new company which will issue 7 per cent non-cumulative stock, preferred as to capital and dividends, not otherwise participating and non-voting, redeemable at par, to the extent of $7,000,000, closed issue, and junior securities at the discretion of the purchasers. No bonds shall be issued in connection with this purchase, but may be issued in the general way for the advantage of the company. The purchase price is comprised of $3,000,000 cash, and the $7,000,000 preferred stock.

The distribution of this is planned on the following basis: Each preferred holder to receive (A) $40 in cash and $70 of preferred, or, (B) $21 cash and $100 preferred. This refers to the exchange for Quebec Pulp & Paper preferred carrying 50 per cent bonus of common stock of that company. As regards holders having no bonus common stock, they will be entitled to receive at their option $100 of the new preferred stock for a like amount of old, or $20 in cash and $70 in preferred.

Fraser Co.'s Extensions

Fraser Companies, Ltd., are now preparing for the erection of an extension to their Madawaska plant to include three paper machines, involving an outlay of from $1,000,000 to $2,000,000. As a result of this enlargement, similar extensions will follow at the Edmundston plant in New Brunswick.

It is officially stated that the direct revenues received by Dominion and Provincial Governments from the forests in the form of rentals, royalties, stumpage charges, etc., amount to $15,000,000 annually.

Aerial Attach on Fraser Pests

An experiment in controlling the dreaded spruce budworm by means of poisoned dust distributed over the forest by aeroplane has been conducted by the Entomological Branch of the Dominion Department of Agriculture in co-operation with the Royal Canadian Air Force and the Provincial Forest Branch of Nova Scotia, on an area near Orangedale, Cape Breton.

The insecticides chosen were those already in use for the control of orchard and cotton insects, namely: calcium arsenate and lead arsenate, in the form of a very fine powder. This powder is distributed during flight at the discretion of the pilot from a specially designed hopper situated in the forward compartment of the plane. The machine flies within about twenty feet of the tree tops in the calm air of early morning and a dense volume of the dust is swept backward by the wind from the propeller and swirls into and through the foliage in a wide swath, approximately one hundred feet in width, covering the foliage completely with a thin coating of powder.

The objects of the work in Nova Scotia during the past summer were to determine the most effective kind of dust and the poundage per acre necessary to kill the caterpillars of the spruce budworm, to determine the cost of the operation on a large scale, and also to devise the most effiecient methods for conducting such an enterprise on large forest areas. Series of carefully selected plots in infested timber, varying from eight hundred feet to two miles in length and from two hundred feet to a quarter of a mile in width, were treated with the poisoned dust in different degrees of concentration. The defoliation which occurs on these treated plots will be compared with that which occurs on selected untreated check areas in the surrounding forest.

This experiment aims at attacking one of the greatest enemies of the forest from a new direction and it offers practically the only hope of controlling spruce budworm outbreaks by any direct means. Since almost every detail of the work is new, as applied to our forest conditions, it is too much to hope that complete success will be obtained in one season. Preliminary reports received from the Cape Breton area indicate that large numbers of the caterpillars have been killed by the treatment; it is, therefore, confidently expected that marked progress will result from this year's experiment and that this method of control can be developed eventually to provide an effective weapon against this destructive insect.

Fox River Valley Paper Industry Expanding

Newly Organized Wisconsin Carton Co. Will Take Over Defunct Elm Paper Box Co. Plant at Neenah—Mill Will Be Enlarged for the Manufacture of Folding Boxes, Labels and Paper Cores—Progress at De Pere Paper Plant

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 10, 1927.—Definite announcement was made this week that the newly organized Wisconsin Carton Company will take over the plant of the defunct Elm Paper Box Company, Neenah, Wis. When the incorporation took place recently, there were rumors that these were the company's plans.

Preparations are now under way to start this industry for the manufacture of folding boxes, labels and paper cores. The plant will be enlarged and the number of employees will range from thirty to fifty. The corporation is capitalized at $100,000 and was organized by James T. Maeder, Adam Schwartzbauer and Alfred Danke. Mr. Maeder formerly was superintendent of the Menasha Printing and Carton Company's plant at Wausau, Wis., and also at this company's plant at Baltimore, Md.

Nicolet Plant to Begin Operations

Two large turbines which were the cause of postponement of operations at the newly organized Nicolet Paper Company's plant at De Pere, Wis., have been erected and are ready for use. The mill will now begin production of glassine and grease proof papers on the two machines which have been waiting for power connections. The mill will employ 125 persons and will operate day and night.

Peshtigo Production Records Broken

All previous production records have been broken by the Peshtigo Paper Company, Peshtigo, Wis., during the last month. By efficiency and speed of operation the mill has turned out more pulp and paper than in any previous month. Sales have also reached the highest point, with orders booked well ahead. The mill is still operating under a receivership, with P. M. Allen of Detroit, in charge, but it is to be sold quite soon. A safety campaign started recently by Mr. Allen resulted in a no-accident record for the month of August.

Pulp Wood Shipments Aided

Pulp wood shipments destined for mills of the Fox River Valley are having only a short journey by rail these days. Deepening of the Fox River channel at De Pere, Wis., has made it possible for boats from the Great Lakes to reach that city via Green Bay, and the wood is reloaded onto flat cars there. The rail journey therefore is only about thirty miles.

Most of the incoming wood represents shipments of the Pulpwood Company, Appleton, Wis., and is brought by barges from the northern end of Lake Huron, and Manitoulin Island, Canada. The company's contract calls for 5,000 cords to be delivered this season.

A. J. Hamlin's New Appointment

A. J. Hamlin has been appointed by the Kotex Company, Neenah, Wis., subsidiary of the Kimberly-Clark Company, to take charge of the company's sales in England. He formerly was the Canadian sales representative. Mr. Hamlin already has sailed for England to take up his new work.

Mill Workers Outings

Employees of all the Wisconsin mills of the Kimberly-Clark Company took part in a huge Labor Day picnic on September 5 at Niagara, Wis., where one of the mills is located. The day was spent by the workmen and their families in amusements of various kinds, including contests, a motion picture performance and a dance.

Employees of the mills of the Combined Locks Paper Company at Combined Locks and Little Chute, Wis., also enjoyed a Labor Day outing at Combined Locks park. About 3,000 persons attended. The day was spent with a program of athletic events, a band concert and a dancing party in the park pavilion.

Buchanan Estate Being Divided

An estate approximating $300,000 left a number of years ago by William Buchanan, one of the founders and proprietors of the Appleton Wire Works, Appleton, Wis., is now being divided, following the death of his widow on August 28. The estate had been held in trust in the meantime in accordance with the manufacturer's will. A liberal share of the property has been given to Gustavus E. Buchanan, son of the decedents, who is secretary and general manager of the Appleton Wire Works. Grandchildren also figure in the bequests and part of the money is given to charity.

Paper Mills to Exhibit

Two local paper mill concerns will be among those having exhibits at the International Direct Mail Advertising Association exposition in Chicago October 19 to 21. The Kimberly-Clark Company, Neenah, Wis., and the Appleton Coated Paper Company, Appleton, Wis., have engaged exhibit space and will show some of their paper products.

R. S. Kellogg Back From Long Tour

R. S. Kellogg, secretary of the News Print Service Bureau, has returned to his headquarters at 342 Madison avenue, New York, after a long and comprehensive inspection trip, during which he covered approximately 11,500 miles by various means of transportation. Since leaving New York on June 28 last, Mr. Kellogg has visited Chicago, Kansas City, Topeka, Kan., Manhattan, Kan., Denver, Col., Salt Lake City, Utah, San Francisco, Cal., Portland, Ore., Bend, Ore., Spokane, Wash., Seattle, Wash., Vancouver, B. C., Alaska, Prince Rupert, Jasper, Winnipeg, Pine Falls, Port Arthur, Kapuskasing, Porquis Junction, Ottawa and Montreal.

During his tour, Mr. Kellogg addressed the Kansas State Agricultural College, Manhattan, Kan., of which he is a graduate. He also gave the International Paper Company film on Paper Making at this event. Mr. Kellogg also addressed the Advertising Club, Denver, Col.; the Lumbermen's Club, Salt Lake City, Utah; the Hoo-Hoo Club, Oakland, Cal; the Hoo-Hoo Club, Portland, Ore.; the Advertising Club, Tacoma, Wash.; the Advertisnig Club, Seattle, Wash.; the Board of Trade, Vancouver, B. C.; the Hoo-Hoo Club, Winnipeg, Man.; and the Hoo-Hoo Club, Fort William, Ont.

Warren Factory Improvements

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 10, 1927.—One of the growing industries at Lafayette, Ind., the Warren Paper Products Company, is expanding its factory at 125 South Fifth street, work being nearly completed on a second story for the brick building. The cost of the improvement, exclusive of additional machinery will be about $30,000, according to Don M. Warren, manager. The addition will practically double the company's production. The roof of the one-story factory building was raised and the second story built the full size of the ground floor. When the addition is completed, all the finishing machinery, together with new apparatus, will be moved ot the second floor, the first being reserved for stock, storage, office space, and the first mechanical processes.

Two New Board Plants for Toronto, Ont.

Local Location, With Ample Wharfage Facilities, Secured by Canadian Paperboard Co.—Two Machines Will Ultimately Have Capacity of 150 Tons Daily—Another Big Mill to Be Erected by Dominion Envelope & Carton Co.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., September 12, 1927.—Canadian Paperboard Company, Montreal, have, as previously announced, concluded negotiations for a site for a new board mill on the south side of Commissioners street, at the foot of Carlaw avenue, Toronto. The new location has a frontage of 1100 feet by a depth of 350 feet, and has ample wharfage facilities. The plans call for the erection immediately of a large mill to turn out paper board, which will cost in the neighborhood of a million dollars and will have a capacity of 75 tons a day. Ultimately it is proposed to install a second machine, bringing up the capacity to 150 tons.

Canadian Paperboard Company, Ltd., are the largest manufacturers of paper board in Canada, having three mills located respectively at Frankford, Montreal and Campbellford which produce 120 tons of paper board and about twenty tons of ground wood pulp daily. The output of these plants is employed by box makers and container manufacturers throughout Canada and a good business has been established.

The mill will use about 20,000 tons of coal per year, which may be brought to their dock by vessel. The principal raw material used in the output of the new industry will be waste paper of which Toronto and surrounding territory produces an abundant supply. Some 1500 horse power of electrical energy will be required to operate the first unit. Kerry & Chase, Ltd., of Toronto, are the engineers in charge of the design and construction of the new plant.

The company was originally established in Campbellford about 1881 by B. E. Keeler, its oldest employee having over forty years of service to his credit. The pay-rolls contain the names of, at least, a score of men who have been employed around the mills for over thirty years. The negotiations entered into between the Canadian Paperboard Company and the Harbor Board provide for a lease of the property and the rental involved will represent a return on the capital value of about $150,000 for the site. The company is also given the right to purchase land within a specified time at this figure.

Possibilities of the North

Alexander Dewar, of the Abitibi Power and Paper Company, Iroquois Falls, Ont., who was chairman of the Northern Crusaders, who recently visited Toronto in large numbers, motoring over the new Ferguson highway which has opened up a large section of the country, says that the great need of the north is farmers who would locate on the land. Northern Ontario has 16,000,000 acres of clay belt, stretching clear from the Quebec border to the Manitoba border and varying in width from 75 to 150 miles. Scarcely 500,000 acres of this land had yet been cleared and anyone willing to till the soil could, by cutting the pulp wood and giving attention to agriculture, be comfortably off in ten or fifteen years. More roads were needed in Northern Ontario, both from the new trunk highway and also from the T. & N. O. Railway. Mr. Dewar believes that the roads should be built first and the settlers brought in afterwards.

Provincial Co. Mill Redeem Bonds

Official announcement is made of the redemption on the first of November next of the outstanding first mortgage 6 per cent bonds of Provincial Paper Mills, Ltd., amounting to $1,350,000. The price to be paid is 105. These bonds are being called in order to complete the purchase arrangement that was entered into last April. At that time a new group secured control of Provincial Paper Mills through the purchase of the common stock at $135. The preferred stock was to be called at 107. This amounts to $1,700,000. The old bonds, now to be cancelled, represented a twenty-year issue that was made in 1920. The original amount distributed was $1,500,000, but this had been reduced by the operation of the sinking fund to $1,350,000. In place of these bonds there were issued immediately afterwards, when the purchase had been ratified through the sale of almost the entire amount of common stock, an amount of $5,300,000 of 5½ per cent bonds, and later an issue of $3,500,000 of 7 per cent cumulative preferred stock. The common stock capitalization is represented by 100,000 shares of no-par, none of which, however, was offered to the public. The redemption of the old bonds will thus complete the refinancing of this company, which now is known as "Provincial Paper, Ltd."

Another New Plant for Toronto

The Dominion Envelope and Carton Company, of which Edward Newhall is president and managing director, intend erecting a million dollar board plant in Toronto and the financial arrangements have been completed. The output will be about 100 tons daily and the machine to be installed will be one of the largest in existence. Half of the quantity of the new plant will be used by the Dominion Envelope and Carton Company, which is the parent organization. The new box board subsidiary, financed from the original, which has long been established as a successful Canadian business, will be known as Dominion Boxboards, Ltd., owned and controlled by the Dominion Envelope and Carton Company. It is expected that the site for the new industry will be on Fleet street.

Another Pulp Project Looms Up

There is taking place the consolidation of several lumbering companies in the district of Sioux Lookout, northwestern Ontario, which will involve the creation of a new organization and the possible construction of another pulp and paper mill in that area. Alex. McDougall, of Ottawa, and B. R. Hepburn, of Picton, Ont., are the promoters of the new concern and the head office will be in Toronto. Two million shares of no par value are being issued. The McDougall interests have been operating for several years near Sioux Lookout as manufacturers of lumber and railway ties. As lumber producers, considerable pulp wood is held on the timber concessions owned by them but up to the present they have not been able to cut this wood. The Ontario government understands now that new capital has been found by the company and that a merger of several smaller concerns is being arranged. The new company has applied to the Ontario Department of Lands and Forests for an additional grant of 1500 square miles of pulp wood and timber and negotiations are now being conducted. It has not been decided by the new concern as yet whether to operate lumber mills and a pulp and paper mill at Sioux Lookout and vicinity or to come down to the head of the lakes near Fort William and obtain power from the hydro plant at Nipigon. If the company decided to operate where its mills are now it will probably require a power lease on the Upper English River.

Waste Dealers Suffer Fire Loss

Fire recently visited the premises of the William Leff Company, Ltd., Bathurst and William streets, London, Ont., who are extensive dealers in waste paper and allied lines. The cause of the fire is unknown, although it is believed to have arisen from spontaneous combustion. The loss is placed at $50,000, mostly on stock, and nearly all the insurance carried by the firm was on a fire-

proof structure which was not injured by the flames to any great extent so that the net loss of the company will not be great. Three loaded freight cars on the company's siding were badly burned. The Leff Company will rebuild at once.

Settlers Finish Pulpwood Cutting

Pulp wood dealers report that the market is rather quiet at the present time and that shipments are not as heavy as they were a few weeks ago. The amount cut by settlers and farmers in Northern Ontario during the recent peeling season was larger than usual. Most of this wood has now been piled in the bush, awaiting the first fall of snow for sleigh haul to the railway sidings from which points on the Transcontinental Railway it will be shipped to the various mills.

Notes and Jottings of the Industry

Walter C. Daley, of the Port Huron Sulphite and Paper Company, Port Huron, Mich., was a recent caller upon the trade in Toronto.

Scott Wallace, of the city sales staff of the United Paper Mills, Toronto, is holidaying in Detroit and other points.

F. J. Smith, of the Deerfield Glassine Company, who are putting into operation new mills at Monroe Bridge, Mass., with sales offices at 5 Beekman street, New York, was in Toronto recently interviewing the trade. The company will turn out quality glassine papers.

S. Strongitharm, of the sales staff of the Don Valley Paper Mills, Toronto, has returned, after spending a pleasant holiday at Lake Simcoe.

Peter Christie, manager of the Winnipeg branch of the Provincial Paper Sales, Ltd., spent a few days in Toronto and other points east recently, calling upon the trade.

The site of the new news print mill of the Great Lakes Paper Company, at Fort William, Ont., is now a very busy scene. Although the work now in progress is only the commencement of the development which has taken place and is along the foundation of what is to come, there are about 265 miles already employed. The new plan will be equipped with two machines and will represent the last word in equipment. Close to the present pulp mill is a pile of manufactured pulp containing 10,000 tons, all of which has to be moved to allow room for the new work.

The Interlake Tissue Mills recently made an attractive exhibit of flowers, etc., at the flower show which was held in Kitchener, Ont.

N. E. Wainwright, of the sales staff of United Paper Mills, Toronto, has returned after spending his holidays at Cobourg and other points east.

The annual picnic of the Montrose Division of the Provincial Paper Mills, Ltd., was held at Queenston Heights, Ont., recently.

A meeting of the western and northern groups of the Ontario Pulp and Paper Mills and of the Woodlands Section of the Canadian Pulp and Paper Association was held at Fort William, Ont., on September 8. The question of pulp wood cutting camps was considered and discussed and a program of activities in the woods arranged for the coming season.

E. M. Irwin, in charge of the order department of the Fred W. Halls Paper Company, Toronto, is spending his holidays at Benton Harbor and other points in Michigan.

The Ontario government's fleet of aircraft now totals 16 in number, and forest fire protective service has been rendered during the past season. The four new aeroplanes of the Mothe type which lately arrived for the service are giving satisfaction.

A provincial charter has been granted to Concord Shipping Cartons, Ltd., with an authorized capital of $200,000 and head offices in Toronto, to make, sell and deal in every kind of material necessary for the manufacture of containers and boxes.

The Walkerville Bag Manufacturing Company, Ltd., was recently incorporated with a capital stock of $40,000 and head office in Walkerville, Ont., to make burlap bags and other fibrous substances. Among the incorporators are Simon Meyers, Louis Siderman and Morris Radner, all of Detroit, Mich.

Journal Press, Ltd., Toronto, was recently incorporated with a capital stock of $250,000, to carry on a general printing and publishing business. Among the incorporators are A. H. C. Bruce, F. A. Dashwood, and T. G. Chisholm, all of Toronto.

Labor Day was observed at Iroquois Falls, Ont., by a big celebration which was carried out under the auspices of the employees of the Abitibi Power and Paper Company. In the morning there was a procession of labor unions and in the afternoon various athletic events, which aroused much interest. There was also a fiddlers' and dancers' contest and getting the mystery man, lucky tag number and a hand shaking contest. In the latter event the twenty-third person to shake the right man by the hand, got a cash prize.

Boston Paper Market Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 12, 1927.—Greater activity in the paper market, which was anticipated and began to develop a week or so ago, continues. This condition prevails particularly now that Labor Day has passed. Inquiries are being received in good volume, an omen of business to come. Some of the dealers had inquiries during the last week, covering a variety of their lines. Ledgers and bonds are in better demand, even at houses which have done a fairly satisfactory business during the summer. A number of the printers are extremely busy on holiday work and the present outlook is more favorable for their industry. Naturally this condition calls for more paper, and there is a general demand for all fine grades.

Due to the higher prices for paper stock, box-board manufacturers have marked up the prices of some of their lines, which went into effect today. The sudden demand for boxes has also tended to make values higher. With increased activity in the shoe business, manufacturers in Brockton, Haverhill, and Lynn have been placing orders for material for boxes. Candy manufacturers have also been sending in orders in larger volume. Whatever the size of the orders the business is generally hand-to-mouth. Filled news board is now quotable at $50, compared with the previous price of $47.50, and chip board at $47.50, compared with $45. Single Manila pulp lined board remains strong at $57.50 to $62.50. Some are looking for another $2.50 advance. The higher grades have not been marked up yet, but they are firm.

The paper stock market is in a much improved condition, and the outlook is bright. The call for mixed papers is pronounced. Some sixty carloads of the No. 1 grade have been shipped by a dealer to consumers at .62½ f.o.b. Boston. Solid ledger stock has been moving at $1.95 to $2.00. A Boston firm sold its total supply, one carload, within this range. No. 1 heavy books are quotable at $1.35 to $1.45, compared with a previous range of $1.17½ to $1.30. Bagging and new and old domestic rags are at practically the same levels, although foreign Manila rope is quoted by some at $3.50.

Hooker and Rogers Touring Europe

A card has been received from A. H. Hooker, Jr., director of service department, Hooker Electrochemical Company, Niagara Falls, N. Y., from Oslo following a visit to a number of mills in Great Britain. He and James Rogers, Jr., who are traveling together, have visited a number of the leading sulphite mills in Norway. On September 1 they were leaving for Sweden and planned to see many of the mills there even as far north as Domsjö.

On their return, which will be in time for the fall meeting of the Technical Association of the Pulp and Paper Industry in Middletown, Ohio, Mr. Hooker will tell the Association about his visits.

First National Fuels Meeting Program

The American Society of Mechanical Engineers has announced the tentative program for the First National Fuels Meeting, which has been arranged for American engineers interested in fuels, and is to be held at St. Louis, Mo., from October 10 to 13, inclusive. The arrangements for this important event, which is attracting much attention throughout the country, are as follows:

MONDAY, OCTOBER 10

9:00 A.M. Local Sections, Fuels Conference.

9:30 A.M. Registration.

11:00 A.M. "Address on Fuels," S. W. Parr, professor of applied chemistry, University of Illinois, Urbana, Ill.

2:00 P.M. General Session:

"American Fuels Resources," O. P. Hood, chief engineer, United States Bureau of Mines, Washington, D. C.

"Combustion and Heat Transfer," Professor R. T. Haslam and H. C. Hottel, Massachusetts Institute of Technology, Cambridge, Mass.

"Recent Developments in Low Temperature Coal Carbonization," H. D. Savage, vice-president, Combustion Engineering Corporation, New York.

Evening:

Smoker and Ladies reception.

TUESDAY, OCTOBER 11

9:30 A.M. Industrial Session:

"The High Cost of Fuel Saving," W. Trinks, professor of mechanical engineering, Carnegie Institute of Technology, Pittsburgh, Pa.

"The Relative Values of Gaseous, Liquid and Solid Fuels," F. J. Ward, professor, fuels and gas engineering, Massachusetts Institute of Technology.

"Application of Powdered Fuel to Smaller Boiler and Industrial Installations," H. Kreisinger and A. B. Wolle, Combustion Engineering Corporation, New York.

Power Plant Session:

"Characteristics of Modern Boilers," E. R. Fish, vice-president, Heine Boiler Company, St. Louis, Mo.

"Direct Fired Powdered Fuel Boilers with Well Type Furnaces at Charles R. Huntly Station," H. M. Cushing, chief engineer, Buffalo General Electric Company, Buffalo, N. Y.

2:00 P.M. General Session:

"The Clinkering of Coal Ash as Related to Laboratory Fusibility Determinations," A. C. Fieldner, W. A. Selvig and P. Nicholls, United States Bureau of Mines, Experiment Station, Pittsburgh, Pa.

"Factors Governing the Purchase of Fuels," Morgan B. Smith, engineer, General Botors Corporation, Detroit, Mich.

"Refractories for High Temperatures," Stewart Phelps, director of research and tests, American Refractories Institute Fellowship, Mellon Institute, Pittsburgh, Pa.

Evening:

Banquet and Mass Meeting (Engineers and Smoke Abatement League)

WEDNESDAY, OCTOBER 12

9:30 A.M. Industrial Session:

"Progress in Gas-Producer Practice," W. B. Chapman, vice-president, Chapman Engineering Company, New York.

"The Use of Fuels in Brick Kilns," W. E. Rice, assistant fuel engineer, United States Bureau of Mines, Pittsburgh, Pa.

"The Burning of Liquid Fuels," Ernest H. Peabody, president, Peabody Engineering Corporation, New York.

Power Plant Session:

"Characteristics of Modern Stokers," F. H. Daniels, president, Riley Stoker Company, Worcester, Mass.

"Air Preheaters," Frank M. Van Deventer, special engineer, Henry L. Doherty Company, New York, N. Y.

"Automatic Combustion Control," T. A. Peebles, chief engineer, Hagan Corporation, Pittsburgh, Pa.

2:00 P.M. General Session:

"Coal Mining and Coal Preparation from Standpoint of Quality," William Beury, general superintendent, Algoma Coal and Coke Company, Algoma, W. Va.

"Some Interesting Phases of Dry Quenching Coke," A. M. Beebee, superintendent, gas manufacturing department, Rochester Gas and Electric Corporation.

"Smoke Prevention in Railways," J. B. Irwin, chief smoke inspector, Chicago and Northwestern Railway.

THURSDAY, OCTOBER 13

9:30 A.M. Smoke Abatement Session:

"The Measurement of Atmospheric Smoke Pollution Visible and Invisible," Dr. George T. Moore, director, Missouri Botanical Garden, St. Louis, Mo.

"Smoke Abatement Methods Used in Cleveland," Colonel Elliott H. Whitlock, commissioner of smoke inspection, Cleveland, Ohio.

"Managing a Smoke Abatement Campaign," Erle Ormsby, president, Citizens' Smoke Abatement League, St. Louis, Mo.

2:00 P.M. Smoke Abatement Session:

"Furnace Essentials for Smokelessness," H. B. Meller, chief of the Bureau of Smoke Regulation, Pittsburgh, Pa.

"Smokeless and Efficient Firing of Domestic Furnaces," Victor J. Azbe, consulting engineer, St. Louis, Mo.

"The Effect of Atmospheric Smoke Pollution—A Summary of Opinions from Current Literature," Professor A. S. Langsdorf, director of industrial and engineering research, Washington University.

James Speed and Family Motors to Coast

MITTINEAGUE, Mass., September 12, 1927.—James Speed, Superintendent of Finishing for the Strathmore Paper Company, has left with his family for an extended motor trip to the Pacific Coast.

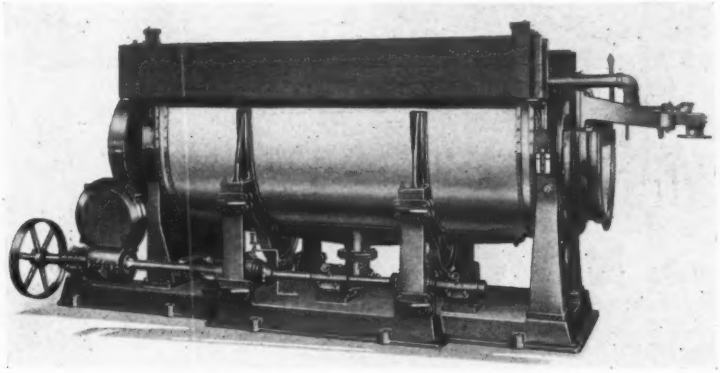
He is traveling over the Lincoln Highway to Salt Lake City, and will proceed from that point north to Spokane and Seattle, thence he will travel down the Pacific Highway from Seattle to San Francisco, Los Angeles, San Diego and various other coast cities. The trip will extend over a period of six months and Mr. Speed is combining business with pleasure as he expects to call quite extensively on the paper and printing trade in the interests of the Strathmore Paper Company.

Receiver for American Writing Discharged

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., September 12, 1927.—The final report of Receiver Sidney L. Willson of the American Writing Paper Company has been approved by Judge James A. Lowell of the United States District Court at Boston and Mr. Willson has been discharged as receiver. His bond of $50,000 has consequently been dissolved. The newly organized company has been functioning for some time as though not under the supervision of the receiver and the action by the federal court justice is more of a formality than anything else.

If you want



Capacity . . .

The Bird Screen's continuous performance at high speeds has been proved by the makers of all grades of paper. Compare it with any other screen handling identical stock for daily or yearly tonnage.

Quality . . . .

Bird Screens are used wherever best papers are made. They have the ability to produce *clean* stock continuously.

Low operating Cost . . .

Throughout the history of the Bird Screen the cost of operation and maintenance has been practically negligible. The better Bird Screen still further simplifies and reduces upkeep.

Dependability

Over two-thirds of all the paper made in North America passes through Bird Screens. The Bird Screen is the accepted standard the world over.

The BIRD SCREEN

BIRD MACHINE COMPANY **BIRD MACHINERY** SOUTH WALPOLE, MASS.

1250

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Woodland, Me.—The St. Croix Paper Company is said to be planning the early rebuilding of the portion of its mill, destroyed by fire, September 8, with loss approximating $25,000. The reconstruction is expected to cost close to a like sum.

Port Townsend, Wash.—The Zellerbach Company, Sacramento and San Francisco, Cal., has plans maturing for its proposed new local pulp and paper mill, and will break ground for the initial units, it is said, within the next 30 to 60 days. The plant will consist of a group of buildings, with power substation and other operating facilities, reported to cost more than $3,500,000. It will be equipped for an output of 150 tons of finished paper per day. The Rainier Paper & Pulp Company, White-Henry-Stuart Building, Seattle, Wash., is interested in the project. V. D. Simons, 435 North Michigan avenue, Chicago, Ill., is consulting engineer for the plant. It is understood that orders will be placed at once for certain machinery, including electrical equipment.

Emeryville, Cal.—The Paraffine Companies, 475 Brannan street, San Francisco, Cal., manufacturer of roofing papers and other processed stocks, has awarded a number of miscellaneous contracts for a new one-story building in the vicinity of Emeryville, to be used primarily for storage and distributing service, estimated to cost approximately $100,000, with equipment. General contract has been let to MacDonald & Kahn, Financial Center Building, San Francisco; brick work will be carried out by Herbert Beckwith, 354 Hobart street, Oakland. Leland Rosener, 233 Sansome street, San Francisco, is engineer.

Philadelphia, Pa.—The Walter P. Miller Company, 452 York avenue, manufacturer of paper boxes and containers, has secured a permit for the erection of its proposed new plant at 441-47 North Fifth street, for which a general contract recently was let to the Fred A. Havens Company, 845 North 19th street, and will proceed with superstructure at once. The factory is estimated to cost about $80,000, with machinery. It will provide for large increase in present output. The company, it is understood, will concentrate production at the new location. Walter P. Miller is head.

Ashland, Wis.—The Lake Superior Paper Company has authorized immediate construction of its proposed new one-story addition, to be 60 x 97 feet, designed as a finishing room, and will push the structure to completion. General contract recently was let to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., which is now arranging for sub-contracts for different features of the work. Structural steel will be furnished by the Vulcan Manufcaturing Company, Fond du Lac, Wis.

Portland, Ore.—The Beaver Cove Pulp & Timber Company, represented by D. C. Henry, 1218 Spalding Building, Portland, consulting engineer, is projecting plans for a new pulp and paper mill on the north end of Vancouver Island, and preliminary surveys are under way in that section. The project will include a hydro-electric generating plant for mill operation. The entire enterprise is expected to represent an investment of close to $5,000,000.

Green Bay, Wis.—The Fort Howard Paper Company, South State street, has completed plans and will soon proceed with a new addition to its plant, to provide for considerable increase in present capacity. It is reported to cost in excess of $50,000. A general building contract has been let to the H. J. Selmer Company, McCartney Building, Green Bay.

Kalamazoo, Mich.—The Kalamazoo Loose Leaf Binder Company, recently acquired by Remington-Rand, Inc., New York, is arranging for company dissolution under state laws. The new owner will take early possession of the plant and property and will continue production as heretofore, with likelihood of expansion in output in the future. G. P. Wigginton, heretofore president of the Kalamazoo organization, will remain in an official capacity with the new owner.

Chattanooga, Tenn.—The Star Box & Printing Company, 1416 Chestnut street, manufacturer of paper boxes and containers, has acquired property at Seventeenth and Chestnut street, 200x300 feet, and plans the early erection of a new plant for the production of corrugated paper and other stiff board cartons. The initial plant unit is estimated to cost about $100,000, and additional units will be built at a later date, with ultimate project representing an investment of more than $300,000. It is understood that certain machinery in the present works will be removed to the new location, following completion of building, and additional equipment provided for increased output. The present mill, it is said, will be maintained in service for the production of certain grades of stock. John Kain is treasurer and general manager.

Chicago, Ill.—The Bates Valve Bag Corporation, 8200 South Chicago avenue, manufacturer of patented bag-filling devices, etc., has arranged for a bond issue of $3,000,000, a portion of the proceeds to be used for general expansion. A new company, of name noted, has been formed under Delaware laws to take over the previous organization. Plants will be continued at Nazareth and New Castle, Pa., Niagara Falls, Ont., and at other locations, as in the past, and increased production arranged. A subsidiary company has been chartered under the name of the Bates International Bag Company, to take over and operate the foreign properties and operations of the company. J. W. Meaker is president of the parent corporation.

Thorold, Ont.—The Superior Paper Mills, Ltd., will soon begin work on a proposed new addition, to be one-story, 55x90 feet, estimated to cost approximately $25,000. It will be used for increase in output.

Toronto, Ont.—The Canadian Paperboard Company, Monreal, Que., has concluded arrangements for the purchase of a tract of about 9 acres of land at the foot of Carlaw avenue, Toronto, as a site for the construction of a new mill. Plans will soon be drawn for the initial plant unit, to be two-story, 150x700 feet, with two L-shaped extensions. It is to be equipped for a production rating of about 75 tons per day, and is estimated to cost upward of $800,000, with machinery. Bids are expected to

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are treated by PATENTED chemical processes TO COUNTERACT the deteriorating effects of water, alkali and acid. This treatment results in a LONGER MAINTENANCE of the natural elasticity and resilience of the wool fibre — BETTER RUNNING PERFORMANCE — HIGHER WATER REMOVAL and QUICKER FUNCTIONING.

An explanation of this tanning treatment and its results has been issued in

KENWOOD BULLETIN No. 29

A reprint of this bulletin will be mailed on request

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be called for within a few weeks. At a later date, it is planned to increase the capacity of the plant to about double the amount noted, this work consisting of an entirely new operating unit. Kelly & Chase, Confederation Life Building, Toronto, are engineers.

Toronto, Ont.—The Telfar Paper Box Company, Duncan street, has plans maturing for its proposed new plant addition, to be three-story and basement, 70x135 feet, reported to cost close to $100,000, with machinery. It will provide for considerable increase in output. Harkness, Loudon & Hertzburg, Confederation Life Building, are engineers.

Toronto, Ont.—The Dominion Box Boards, Ltd., an interest of the Dominion Envelopes & Cartons, Ltd., Toronto, is perfecting arrangements for the purchase of a tract of land on Fleet street, for the construction of a new mill for the production of box board specialties. The initial unit is reported to cost in excess of $500,000, with machinery. James L. Carey, 208 North Laramie avenue, Chicago, Ill., paper mill engineer, will prepare plans for the new mill and supervise erection.

New Companies, Etc.

Mount Vernon, N. Y.—The Koch Brothers Paper Box Manufacturing Company has been incorporated with a nominal capital of $5,000, to operate a local plant for the manufacture of paper boxes and containers. H. L. Kunstler, 2 Lafayette street, Mount Vernon, is principal incorporator and representative.

Trenton, N. J.—The Trenton Tag Company has been incorporated with a capital of $100,000, to manufacture tags, labels and kindred paper goods. The incorporators are Edwin A. Arnold, Robert F. Burroughs and George Van Aken. The company is represented by Ellis L. Pierson, 143 East State street, Trenton.

Brooklyn, N. Y.—The Progressive Corrugated Paper Machinery Company, 1087 Flushing avenue, has arranged for an increase in capital from $10,000, to $50,000, for general expansion in operations.

New York, N. Y.—The Superfine Paper Mills, Inc., has been incorporated with a capital of $15,000, to manufacture high grade paper specialties. R. J. H. Holtzmann, Woolworth Building, New York, is principal incorporator and representative.

Whiting & Cook Use Air Express

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., September 6, 1927.—Whiting & Cook, Inc., stationery manufacturers of this city, were the first firm in this section to make use of the new air service of the American Railway Express last week. The local firm sent a package containing its product to Cleveland, Ohio., weighing four and a half pounds at a cost of $9.38. The package was delivered to the local express office at 1:30, left the city at 2:30, and arrived at the Hartford field in time to be placed on the plane leaving for the west at 8:15.

Paper Cup Business Expanding

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 10, 1927.—Alert industrial managers are adopting the use of paper cups to safeguard the health of their employees, according to A. C. Ostermeyer, proprietor of the Ostermeyer Paper Company, of Indianapolis. He points to the vast increase in the use of paper cups during the past few years. This branch of the company's business has shown an increase during the last two years out of proportion with the expansion of other lines of the company's business.

Melle E. Lowman Visits Indiana

INDIANAPOLIS, Ind., September 10, 1927.—Melle E. Lowman, former resident of Anderson, Ind., and now proprietor of the Melle E. Lowman Box Company at Syracuse, N. Y., is visiting Anderson. Mr. Lowman was employed at the Sefton Manufacturing Company plant for several years. Some time ago he secured the controlling interest in the Syracuse box factory.

Obituary

Stuart D. Lansing

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., September 15, 1927.—Stuart D. Lansing, president of the Bagley and Sewall Company., of Watertown, builders of paper mill machinery and widely known thorughout the paper industry, died at his home in Watertown following a two weeks illness of heart trouble. Mr. Lansing was 61 years of age and for years has been one of the outstanding industrial figures of Northern New York. He was taken ill at his desk in mid-August and never recovered.

Mr. Lansing was born in Watertown, but moved with his family to Burlington, N. J., at an early age. He was graduated from the University of Pennsylvania in 1888 and immediately after leaving college entered the employ of the Bagley and Sewall Company in a minor position. The company at that time manufactured printing presses but shortly after began to build paper mill machinery, developing since into one of the largest paper machine making companies in existence.

Mr. Lansing's rise in the business was steady. In 1894 he married Carrie S. Bagley, daughter of George Bagley, at that time president of the company. In 1897 he was elected secretary of the company and served in that capacity until 1913 when was elected vice president. Two years later, following the death of George Bagley, he was elected president of the firm, in which office he served until his death.

Under the direction of Mr. Lansing as president, the Bagley and Sewall Company has grown from a small organization to one of the best known firms of its kind, holding the record for having made some of the largest paper machines ever built.

The activities of the deceased extended into every phase of Northern New York industrial, banking and social life. He was chairman of the board of directors of the Jefferson County National Bank, president of the Jefferson County Historical Society, a former Commodore of the Crescent Yacht Club, and a member of the Royal Canadian Yacht Club of Toronto, as well as a member of the Black River Club and other community organizations of Watertown.

He was also a member of the Engineers' Club of New York and the Technical Association of the Pulp and Paper Industry. He was considered one of the foremost American authorities on paper-making machinery and was known personally to practically every paper mill official in the country.

The survivors are his wife, two sons; Edward S. Lansing, who was associated with his father in the Bagley and Sewall Company as assistant to the president, and Ambrose T. Lansing; one daughter, three brothers and two sisters.

William F. Dodge, Sr.

E. Butterworth & Co., Inc., dealers in foreign and domestic paper makers' supplies, of 15 East 26th street, New York, announce with pronounced regrets the death of William F. Dodge, Sr., at his home in England on August 30. Mr. Dodge was a director of Edwin Butterworth & Co., Ltd., Manchester and Liverpool, and was 72 years of age at the time of his death. He was connected with the firm for 59 years.

Fred J. Cathcart

[FROM OUR REGULAR CORRESPONDENT]

BUFFALO, N. Y., September 11, 1927.—Fred J. Cathcart, office manager for the International Paper Company in Niagara Falls, N. Y., and vice president of the local Board of Education, died suddenly of heart disease yesterday, as he was about to leave his home for his office. Mr. Cathcart was 54 years of age and a native of Niagara Falls.

THIS WINTER—
Put Waste Heat To Work!

BRINER ECONOMIZER

Licensed Under Patents of E.A.Briner and John E. Alexander

Learn How You Can Save Steam!

¶ Cold weather sets in. The old battle for heat begins! Up comes the cry for "Steam—more steam." Boilers strain under peak loads! Up go the operating costs. Thinner grows the margin for profit!

¶ No mill handicapped by such conditions can hope to favorably compete for business. Too many mills are now heating their machine room by reclaiming and utilizing heat units that would otherwise be wasted in the vapor from the machine. These mills are securing increased production at lower cost. They have greatly reduced their steam cost and leveled the peaks in boiler load during extreme weather.

¶ These advantages are secured by operating Briner Economizers, recognized by leading paper mill engineers as the logical method of eliminating costly waste of heat units.

¶ To install Briner Economizers proves an investment that pays big returns annually. Not to install Briner Economizers is to pay for them anyway—through waste.

¶ If you are interested in cutting steam costs this Winter, consult us now. Installations for Fall operation are now being arranged.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street, CHICAGO — Main Office, 30 E. 42nd Street, NEW YORK — 1117 Tacoma Ave., TACOMA, WASH.

ROSS ENGINEERING OF CANADA, Limited
New Birks Bldg.—Montreal

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

New York Trade Jottings

Alan G. Goldsmith, of the Mead Investment Company, Dayton, Ohio, is in New York this week.

* * *

G. A. Ware, of the News Print Service Bureau, has returned to duty after spending an enjoyable vacation at the seaside.

* * *

F. C. Clark, of the East Hartford Manufacturing Company, Burnside, Conn., is a prominent New York visitor.

* * *

Daniel M. Hicks, Inc., dealers in paper mill supplies, of 200 Fifth avenue, New York, have been appointed sole agents for the Eagle brand of imported sulphite pulps.

* * *

Herbert Lippitt, of the Core Sales Department of the International Paper Company, sailed last Saturday for Europe aboard the French liner *Ile de France,* to further the interests of his organization.

* * *

Walter Hicks, of Daniel M. Hicks, Inc., Fifth Avenue Building, New York, has returned to his desk after spending an enjoyable vacation with his family at their summer residence in Shelter Island, Long Island, N. Y.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, addressed the Cost Conference of the International Association of Electrotypers, at the Hotel Astor, New York, last Friday. The subject of Mr. Kellogg's discourse was "Cost Knowledge and Business Management."

* * *

The Mathieson Alkali Works, Inc., of 250 Park avenue, New York, announce the appointment of H. D. Honan, formerly connected with the Philadelphia district sales office, as St. Louis district sales manager, replacing F. H. Lovenberg, who has been assigned to the New England district sales office at Providence, R. I.

* * *

The National Association of Waste Material Dealers, Inc., with headquarters in the Times Building, New York, announce that the Trunk Line Association proposes to establish a rate of 23 cents per 100 pounds on wood pulp, car loads, minimum weight 50,000 lbs., from New York City and Brooklyn stations; also New York lighterage points to stations on the Greenwich and Johnsonville Railway, viz.: South Cambridge, N. Y., to East Greenwich, N. Y. The association also announces that the New England Freight Association proposes to establish a rate of 27½ cents per 100 pounds on import wood pulp, car loads, minimum weight 50,000 pounds, from New York Harbor lighterage points to Mechanic Falls, Me.

* * *

An announcement of interest to the paper industry has been made by J. J. Bernet, president of the Erie Railroad, that the road's new $4,000,000 fireproof pier at the Jersey entrance of the Holland vehicular tunnel has been completed and placed in operation. The new pier, known as No. 9, has been leased to the Dollar Steamship Company, which has already begun berthing its ships there. The pier is a double deck concrete and steel structure, 1,247 feet long and 150 feet wide.

* * *

The regular weekly meetings and luncheons of the New York Division of the Salesmen's Association of the Paper Industry were resumed last Monday at the Canadian Club, New York, an excellent attendance of members being present. R. S. Kellogg, secretary of the News Print Service Bureau, gave an interesting account of his rcent western trip, which was greatly appreciated by the gathering.

News Print Accountants and Engineers To Meet

The mid-western meeting of the cost accountants and engineers of the News Print Service Bureau will be held at the Auditorium, Port Edwards, Wisconsin, on Friday, September 23. This meeting will be largely attended by representatives of mills in the Lake States. A regular Fall meeting will be held in New York, probably on October 18.

The following program has been arranged:

(1) "Measuring the Productivity of Repair and Miscellaneous Labor." (An analysis of various methods to control repair and yard crews as well as other miscellaneous labor will be presented by members of the Bureau.)

(2) "Budgetary Control Methods of the Munising Paper Company," by E. F. Bartels, auditor, Munising Paper Company. (The system as worked out by Munising will be explained in detail.)

(3) "Reduction of Loading and Shipping Costs," by J. H. Slater, manager, Escanaba Paper Company. (The unit load method of shipping paper will be explained and a further discussion will be held regarding various methods of economical handling of material.)

Dinner, Auditorium, 6 P. M.

(4) "Technical Control of Sulphite Cooking and Its Relation to Costs," by W. G. MacNaughton, Secretary, TAPPI. Discussion.

(5) "The Construction and Operation of a New Boiler Plant," by E. Belter, Consolidated Water Power Paper Company.

R. S. KELOGG, Secretary.

Third Unit in Farmers Powerhouse in Operation

The third unit in the Farmers, Quebec, hydro-electric plant of Gatineau Power Company has been turned over and is supplying power to the Gatineau mill of Canadian International Paper Company. The first unit was put in operation on May 8 and the second on July 2.

The Farmers powerhouse is designed for five generators of 24,000 horsepower each, of which four will be installed initially. The fifth unit will be installed as soon as the demand for electric energy justifies it.

Three units in the Chelsea powerhouse of the Company, a mile above Farmers, are also in operation, giving the Company in the two plants a total of six units operating an aggregate capacity of 174,000 horsepower.

The Farmers station utilizes a gross head of sixty-six feet, the natural head being augmented by a relatively low concrete dam built across the natural bed of the stream. The powerhouse on the east bank was erected on dry land, thus eliminating expensive coffer-damming operations.

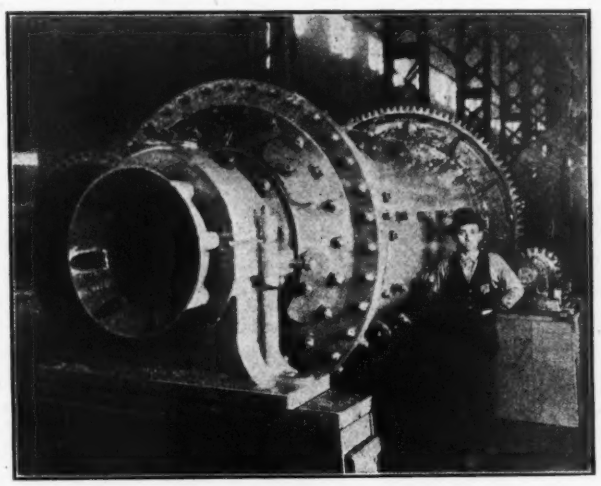
Graphic Arts Exposition Successful

Members of the paper trade attending the Fourth Educational Graphic Arts Exposition at the Grand Central Palace, New York, are finding many of the exhibits of absorbing interest. The exposition is the largest and most imposing ever attempted and is attracting a record attendance, including many visitors from abroad.

In addition to the comprehensive printing exhibits, a number of the leading paper manufacturers and distributors are displaying their products and specialties, including the A. M. Collins Manufacturing Company, Louis De Jonge & Co., The Hammermill Paper Company, the Japan Paper Company, the S. D. Warren Company, the Strathmore Paper Company, the Old Colony Envelope Company, Marquardt, Blake and Decker, the United States Envelope Company, the Worthy Paper Company Association, the Waterfalls Paper Mills, the National City Paper Company, the Du Plex Envelope Corporation, and others, all of whom are presenting notable and attractive exhibits.

Greater Hydration

Made Possible By The Hardinge Rod Mill



Accomplished in less time and with less horse power consumption. The unique construction of "the Hardinge" has proven its many advantages in the paper industry. The Hardinge alone, has the conical ends which gives greater protection against wear and breakdowns. The rolling action of the heavy rods forces water into the fibres without any cutting action whatever, thereby producing the greatest hydration and preserving maximum strength of the fibre. The rods are always in alignment. No friction against ends. The pulp level can be changed to any desired point without endangering rod or liner wear. Extra large trunions provide easy removal and replacement. If you want better stock—in less time—specify THE HARDINGE. It is made better and gives longer service.

Drop us a card. We will have one of our engineers fully explain the Hardinge Rod Mill to you. Of course there will be no obligation.

THE GRILEY-UNKLE ENGINEERING CO.

FORT WAYNE, INDIANA

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending July 31, 1927, and for the Six Months Ending July 31, 1927, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	July				Seven Months Ending July 31			
	1926		1927		1926		1927	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$11,556,097	.....	$12,071,968	.....	$78,703,232	.....	$83,674,941
Printing paper—								
Standard news print ....lbs...free	307,729,754	10,294,774	319,373,537	10,525,007	2,075,174,638	69,771,605	2,212,364,740	73,155,023
Imported from—								
Finland	3,453,759	106,497	4,441,501	123,839	37,041,947	1,095,266	36,875,376	1,048,222
Germany	1,106,340	33,937	468,124	13,041	21,284,719	630,900	8,040,210	257,965
Norway	1,152,159	32,885	4,119,617	108,454	3,332,081	98,734	21,303,910	575,843
Sweden	7,785,498	234,533	10,828,819	309,233	48,805,878	1,490,823	81,243,570	2,348,773
Canada	273,156,182	9,199,600	282,550,199	9,427,761	1,892,347,421	64,103,799	2,004,342,657	66,930,847
Newfoundland and Labrador	20,998,291	685,079	16,857,414	539,275	71,648,052	2,328,162	59,784,542	1,969,839
Other countries	77,525	2,243	107,863	3,404	714,540	23,921	774,475	23,534
All other, n. e. s....lbs...dut.	1,640,880	74,929	760,753	44,530	9,985,884	497,753	5,936,547	303,774
Grease-proof and waterproof papers..lbs...dut.	245,208	28,508	69,017	11,797	1,425,542	232,196	1,022,519	168,238
Kraft wrapping paper ....lbs...dut.	323,557	14,755	1,025,319	43,415	4,917,295	214,476	5,742,822	250,682
All other wrapping paper ....lbs...dut.	169,248	13,086	250,296	12,113	3,140,325	234,780	2,424,088	124,720
Writing, drawing, bond, etc....lbs...dut.	285,158	76,674	558,731	156,597	2,092,815	475,002	2,001,870	499,403
Surface coated ....lbs...dut.	227,282	78,199	233,324	94,404	1,222,935	458,429	1,334,065	530,960
Tissue paper ....lbs...dut.	256,895	124,873	284,948	141,748	1,674,470	788,221	1,817,481	1,020,995
Pulp boards in rolls....lbs...dut.	4,475,943	107,090	4,828,257	110,900	45,830,725	1,113,235	36,239,598	874,858
Other paper boards, n. e. s....lbs...dut.	.....	97,945	.....	84,738	.....	509,069	.....	570,327
Cigarette paper, cigarette books, and covers ....lbs...dut.	841,728	223,868	1,252,808	353,697	4,761,969	1,257,361	9,441,171	2,840,622
Hanging paper ....lbs...dut.	222,348	27,481	84,523	37,586	1,947,945	338,379	1,596,018	402,198
Paper boxes ....lbs...dut.	191,516	71,147	203,830	95,153	1,220,679	554,258	1,372,502	754,766
Pulp or papier-mâché and manufactures of, n. e. s. ....lbs...dut.	157,973	31,949	108,513	28,483	1,231,056	223,925	1,132,182	209,986
Duplex decalcomania, not printed....lbs...free	23,061	5,711	68,210	16,694	388,363	96,179	444,020	99,657
All other ....dut.	.....	285,108	.....	315,106	.....	1,938,364	.....	1,868,732

WOOD PULP

Mechanically ground wood pulp.....tons..free	19,326	690,366	11,914	348,227	138,753	4,197,943	110,839	3,228,798
Sulphite wood pulp ....tons	77,602	5,058,483	82,325	5,165,711	517,605	34,149,921	509,518	33,123,783
Unbleached ....tons..free	50,893	2,994,236	52,841	2,944,782	343,826	20,107,166	323,679	18,564,943
Bleached ....tons..free	26,709	2,064,247	29,484	2,220,929	173,779	14,042,755	185,839	14,558,840
Imported from—								
Finland	3,080	204,153	4,413	222,372	29,249	1,609,535	46,540	2,476,007
Germany	8,637	592,413	2,937	209,239	50,504	3,416,400	33,322	2,388,314
Norway	5,176	429,103	6,548	460,690	41,544	3,342,068	40,807	3,074,545
Sweden	32,155	1,926,393	36,938	2,200,510	151,567	9,250,631	169,916	10,468,798
Canada	27,073	1,822,131	28,701	1,903,074	226,832	15,439,387	197,258	13,352,726
Other countries	1,481	84,290	2,788	169,826	17,909	1,091,900	21,675	1,363,393
Sulphate wood pulp, unbleached (Kraft pulp) ....tons..free	37,293	2,298,946	22,303	1,383,202	187,480	11,895,250	168,302	10,599,561
Imported from—								
Finland	4,797	244,165	1,714	89,430	16,710	934,791	6,733	363,665
Norway	1,464	97,191	1,518	80,171	7,188	465,439	6,067	353,416
Sweden	18,952	1,127,467	9,332	577,479	77,988	4,771,836	79,564	4,905,885
Canada	11,646	804,739	9,739	636,122	82,902	5,560,401	75,186	4,927,479
Other countries	434	25,384	.....	.....	2,692	162,783	752	49,116
Sulphate wood pulp, bleached.....tons..free	495	29,408	492	29,164	8,229	545,865	8,307	550,312
Other pulp ....tons..free	182	10,811	28	8,731	1,289	77,198	991	94,844

CRUDE PAPER STOCK

Rags for paper stock....lbs...free	41,176,640	824,420	34,570,788	622,346	289,651,794	6,552,925	220,233,105	4,606,682
Waste bagging, waste paper, etc.....lbs...free	8,961,500	180,262	7,795,998	108,223	72,035,967	1,514,370	51,602,599	706,045
Old rope and all other paper stock....lbs...free	7,636,582	329,567	10,545,801	171,407	53,884,692	2,181,271	38,563,270	1,134,404

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s....lbs...dut.	181,967	184,674	278,102	302,401	2,908 214	3,233,752	3,465,549	3,852,344
Imported from—								
Belgium	1,431	2,412	7,406	7,463	118.211	184,204	116,871	167.182
France	5,032	9,514	10,908	14,310	106.141	138,871	111,974	130.752
Germany	74,045	56.720	142,890	136,829	1,391.063	1,439,275	2,172,361	2,267,205
Italy	3.534	3,745	1,323	1,846	49,727	52,087	60,180	70.635
Switzerland	85,659	107,717	96,030	128,478	1.089,258	1,261,720	844,859	1,061,704
United Kingdom	1,181	1.691	8,143	9,032	103.100	97,898	102,934	99,670
Other countries	11,085	2,875	11,402	4,443	50,714	59,697	56,370	55.196
Casein or lactarene ....lbs...dut.	2,691.314	359.583	2,176,208	317,459	18,422,802	1,880,851	17,946,193	2,235.182
Kaolin, china, and paper clay.....tons..dut.	42,225	405,004	28,276	278,134	216,533	2,141,555	178,112	1,749,195

(*Continued on page 36*)

C-H (Harland) Sectional Inter-Lock Paper Machine Drive

Higher running speeds—
More homogeneous texture—
Greater uniformity in weight—
Fewer "breaks"—

THE C-H (Harland) Paper Machine Drive is a simple, yet most efficient method of maintaining that close synchronism between sections which has such telling effect on paper quality and paper costs.

The extreme steadiness of draw afforded by this drive also permits higher running speeds without affecting quality and with fewer "breaks."

The entire C-H (Harland) Drive is so simple that your mill electricians can master its workings in twenty minutes study.

C-H engineers will gladly furnish complete information on the economies this drive will bring to your plant. Write today for full information.

755 ft. per minute vibration of the sheet is imperceptible to camera

At the plant of the Belgo-Canadian Paper Co., Shawinigan Falls, Canada; on a 232-inch newsprint machine. The distance between the rolls is 5 feet. A five minute camera exposure failed to show any vibration of the sheet.

Above are shown the C-H Drives for this machine.

The CUTLER-HAMMER Mfg. Co.
Pioneer Manufacturers of Electric Control Apparatus
1254 St. Paul Avenue, MILWAUKEE, WIS.

CUTLER C-H HAMMER

Industrial Efficiency Depends on Electrical Control

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 34*)

EXPORTS—PAPER

	July 1926 Quantity	July 1926 Value	July 1927 Quantity	July 1927 Value	Seven Months Ending July 31 1926 Quantity	Seven Months Ending July 31 1926 Value	Seven Months Ending July 31 1927 Quantity	Seven Months Ending July 31 1927 Value
Paper and manufactures (total)	.....	$2,267,598	.....	$2,200,364	.....	$15,715,751	.....	$16,067,345
Printing paper—								
News print paper ....lbs.	3,801,308	181,516	1,966,603	92,691	26,160,033	1,229,771	16,741,433	792,942
Exported to—								
Canada ....lbs.	335,891	21,576	179,911	11,225	1,015,731	70,569	1,941,744	124,137
Central America ....lbs.	48,518	2,248	27,088	1,149	897,569	40,587	371,366	18,127
Mexico ....lbs.	68,578	3,321	56,252	2,505	673,164	34,640	382,299	16,947
Cuba ....lbs.	607,334	26,528	442,122	17,587	4,683,579	205,413	3,291,778	150,910
South America ....lbs.	392,506	19,038	517,434	21,943	5,078,367	235,317	4,250,615	185,360
China, Hongkong, and Kwantung ....lbs.	1,606,757	69,883	16,911	1,265	6,635,954	301,937	331,824	20,029
Japan ....lbs.	.....	.....	.....	.....	1,823,018	81,548	67,984	4,048
Philippine Islands ....lbs.	318,571	14,294	560,391	24,885	4,159,535	193,842	5,068,943	205,654
Other countries ....lbs.	423,153	24,628	166,494	12,132	1,193,116	65,918	1,034,880	67,730
Book paper, not coated ....lbs.	1,279,219	123,817	1,694,424	139,629	9,530,673	952,938	9,562,769	821,963
Exported to—								
United Kingdom ....lbs.	77,307	5,783	118,171	9,163	303,643	56,767	311,065	23,412
Canada ....lbs.	255,893	23,085	330,307	24,969	2,163,892	202,679	2,392,764	191,155
Central America ....lbs.	47,777	5,481	25,865	2,472	384,018	42,636	184,878	18,112
Mexico ....lbs.	152,253	16,931	52,542	5,310	938,244	97,257	290,831	32,196
Cuba ....lbs.	238,674	26,360	322,998	25,842	1,369,895	131,015	1,324,601	113,416
Argentina ....lbs.	17,385	1,679	211,193	17,029	391,009	34,229	666,625	52,887
Other South America ....lbs.	38,894	3,794	68,227	11,013	885,659	91,942	1,157,221	91,696
China, Hongkong, and Kwantung ....lbs.	119,340	12,054	.....	.....	757,729	75,652	344,277	36,494
Philippine Islands ....lbs.	168,491	14,439	409,064	26,350	1,082,355	93,918	1,275,081	98,359
Australia ....lbs.	20,702	2,238	36,607	3,481	326,478	35,423	553,937	58,603
Other countries ....lbs.	142,503	11,973	119,450	14,000	927,751	91,420	1,061,489	105,633
Cover paper ....lbs.	96,316	20,114	146,599	25,921	767,383	141,119	928,741	163,698
Grease proof and waterproof paper....lbs.	134,738	17,905	373,904	51,406	1,366,185	203,655	1,666,163	234,687
Wrapping paper ....lbs.	2,592,852	168,939	2,258,126	166,673	19,316,395	1,338,602	18,168,722	1,309,823
Surface coated paper ....lbs.	493,547	65,905	430,266	58,039	4,098,626	490,833	4,047,721	501,737
Tissue and crêpe paper ....lbs.	385,772	94,348	661,690	109,861	2,348,554	591,813	2,703,215	583,538
Toilet paper ....lbs.	431,065	54,779	378,705	49,686	2,789,840	350,565	2,999,489	383,290
Paper towels and napkins ....lbs.	206,172	27,281	252,453	37,913	1,138,736	162,277	1,386,630	189,401
Boxboard ....lbs.	4,401,738	114,404	2,809,882	85,771	29,369,344	821,016	27,363,108	843,071
Bristols and bristol board....lbs.	210,685	16,861	226,139	16,374	933,301	108,932	1,317,571	113,098
Other paper board and straw board....lbs.	3,329,813	172,367	3,176,999	135,494	22,156,325	1,153,049	25,591,586	1,397,479
Sheathing and building paper....lbs.	1,169,515	57,777	1,244,587	39,225	6,512,605	291,023	7,879,428	310,885
Wall board of paper or pulp....sq. ft.	2,195,374	80,022	4,859,222	155,910	13,617,581	466,808	28,891,535	950,798
Blotting paper ....lbs.	232,305	29,955	347,699	38,249	2,031,364	256,019	2,042,821	232,598
Filing folders, index cards, and other office forms ....lbs.	63,423	23,034	82,337	29,086	517,524	150,323	645,804	179,954
Papeteries (fancy writing paper)....lbs.	47,430	10,935	60,852	17,170	305,362	99,988	372,243	95,535
Other writing paper ....lbs.	1,084,409	163,925	996,794	136,944	5,821,634	953,195	6,869,746	1,068,056
Paper hangings (wall paper)....yds.	957,406	40,407	1,221,062	31,241	15,929,978	394,805	16,570,610	372,678
Paper bags ....lbs.	943,781	78,530	917,792	70,881	6,808,379	605,441	7,421,699	628,763
Boxes and cartons....lbs.	1,624,674	121,911	2,080,339	136,946	11,130,934	799,261	13,470,220	900,271
Envelopes ....lbs.	266,773	46,586	225,060	34,570	1,583,203	291,937	1,535,349	260,831
Vulcanized fiber sheets, strips, rods, and tubes ....lbs.	397,304	114,745	329,885	100,691	3,756,918	991,775	2,680,670	807,968
Manufactures of vulcanized and indurated fiber ....lbs.	76,222	21,375	90,115	15,469	319,865	100,310	369,664	91,873
Cash register and adding machine paper....lbs.	197,727	19,844	197,285	18,354	1,098,001	113,846	1,030,997	109,247
Other paper and paper products	.....	400,316	.....	406,170	.....	2,656,450	.....	2,723,161
WOOD PULP AND PAPER STOCK								
Sulphite wood pulp ....tons	1,706	113,298	1,708	87,815	12,750	845,129	10,988	662,979
Soda wood pulp ....tons	194	17,785	270	24,406	1,096	97,269	1,388	122,731
Other wood pulp ....tons	346	29,307	2	188	4,337	451,837	1,851	68,164
Rags and other paper stock....lbs.	14,319,631	197,937	14,429,967	200,550	116,764,767	1,624,192	129,051,411	2,010,522
PAPER AND PULP MILL MACHINERY								
Paper and pulp mill machinery....lbs.	1,295,192	280,778	883,682	178,572	7,025,217	1,653,575	12,202,753	2,421,982

South American Opportunities

[FROM OUR REGULAR CORRESPONDENT]

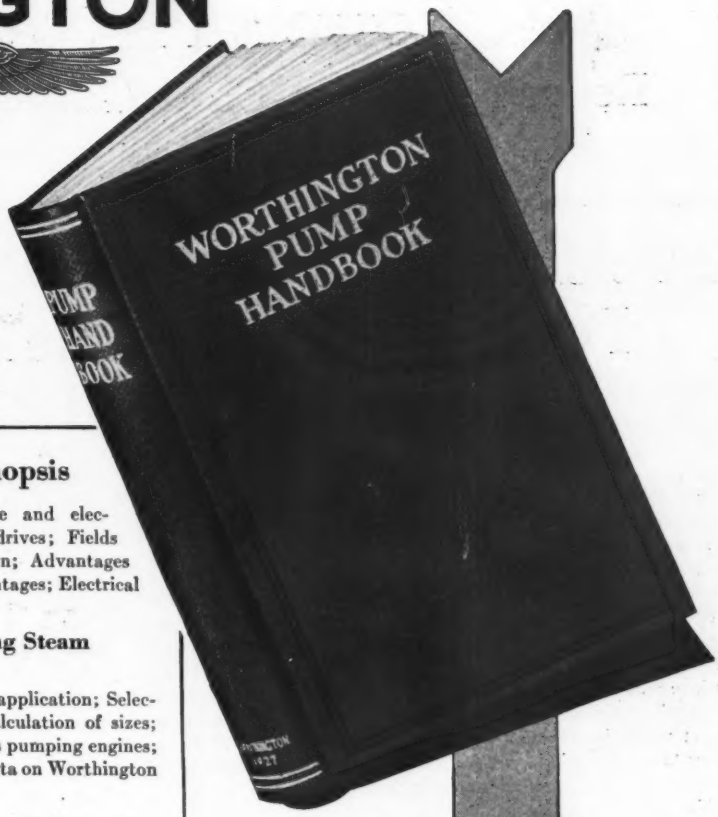
INDIANAPOLIS, Ind., September 10, 1927.—"The resources of South America offer a tempting opportunity for the American business man and during the next century South America is going to come to the front rapidly as a business center of the world," declared John R. Robinson of Kalamazoo, Mich., a representative of the Rex Paper Company, in an address to the Advertising Club of Indianapolis at its last meeting.

"American business interests must know local conditions in South America to be able to sell effectively by modern advertising methods," he continued. "Markets in South America must be developed by personal contacts before any American-made product can be advertised there successfully. A representative of an American firm who goes to South America first must sell himself to the business men of that great territory. Then he must sell his firm to them and finally his merchandise."

Port Alfred Mill's Modern Equipment

The plant of the Port Alfred Pulp and Paper Corporation which is a division of the St. Maurice Valley Corporation contains all the latest devices of high production and economy in operation. The sulphite machines are now equipped with Briner Economizers and Ross systems on account of the experence with the Briner Economizers and Ross Systems on the four new machines.

WORTHINGTON



A complete up-to-date pump treatise

550 pages, size 6 x 9
298 illustrations, cloth bound

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General Theory and Units

Definitions; Properties of liquids; Principles of mechanics, hydraulics and thermodynamics with special reference to pumping problems; Pump selection and operation; Factors influencing pump selection; Table of pump fittings for various liquids.

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Types; Principle of operation; Design problems; Characteristics; Types for low service, general service, high pressures; boiler-feeding and special services; Sizes and data on Worthington types.

Power Pumps

Basic types; Advantages and disadvantages; Applications; Cost of operation; Mechanical details; Sizes and data on Worthington types.

Deep-well Pumps

Description of rotating types; AXIFLO and CONIFLO Pumps; Range of capacities; Characteristic curves; Fields of application; Reciprocating types; GLENDORA.

Power for Pump Drives

Oil-engine, gasoline-engine, kerosene-engine, waterwheel, steam-turbine and electric-motor drives; Fields of application; Advantages and disadvantages; Electrical data.

Direct-acting Steam Pumps

Types and application; Selection and calculation of sizes; Waterworks pumping engines; Sizes and data on Worthington types.

Installing and Operating Pumping Machinery

General instructions for erecting, starting up and operating pumps of all types; Piping arrangements; Valve adjustments.

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Analysis of requirements; Properties of oil; Flow laws; Well pumping; Pipe-line pumping; Loading and unloading; Refining; Data on Worthington pumps for all of these services.

Tabular Section

Tables of weights and measures, U. S. and Metric; Conversion and equivalent tables; American pipe standards; Fire-stream nozzle, discharge and pressure tables.

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Gentlemen:

Please send me circular No. 6071-3 describing your Pump Hand Book, together with specifications for receiving free copy. I assume no obligations.

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Power Plant Section

Reducing Power Costs Through Unit Treatment

Conducted by REGINALD TRAUTSCHOLD, Consulting Engineer

Efficient And Economical Utilization of Electric Power Necessitates The Employment of Modern Speed Reducers

A prominent manufacturer of speed reducers recently broadcast the claim that such units are the ideal drive for agitators, filters, pulp screens, cutters, winders, slitters, calenders, pumps, rolls, save-alls, beaters, stokers, rotary driers, and conveyors. Why stop here? Had he included log hauls, slashers, swing saws, barkers, grinders, Jordans, paper machines of virtually all types, hoists, elevators and nearly every power actuated unit in power plant and mill, he would not have exaggerated one iota. These units make possible the effective use of high speed motors and turbines and the sensitive and positive control of machine speeds. Other manufacturers, also appreciating this situation and recognizing the great market which is presented at this time for the sale of speed reducers to the paper industry, are grooming their sales forces in the processes of paper making and pulp production.

This is all very much in line with that irresistible trend toward the electrification of all industry, for it is nearly always found that it is less expensive to make use of the more efficient and less costly high speed motor and so avoid some of the speed reduction. All progress in the distribution and transformation of power in the manufactory has been and is in this direction. The electric motor revolves at a much higher speed than do the power units it is replacing and, commonly, much in excess of any feasible operating speeds of the machines it drives. This, in spite of the very marked speeding up of machines and production processes which are taking place in the progressive paper mill.

True, paper machines are now speeded up to 1,400 feet per minute, or more, where formerly they operated at from 100 to 300 feet a minute, but where the lineshaft or old type power unit revolved a few hundred times a minute, the high speed motor and steam turbine rotates as many thousand times in the same period of time. The speeding-up of power units has been far in excess of any attainable increases in machine operating speeds. The result has been that economical and efficient speed reduction has assumed an even more important role in all paper and pulp making processes than in the old days of more leisurely operation. Drives which were acceptable for the low speeds of bygone days are no longer adequate, naturally, either from the view point of capacity or efficiency, whether the drive is sectional or mechanical with engine, turbine (steam or hydraulic) or motor prime mover, belted, geared or direct connected.

All production processes have been subjected to painstaking study and investigation in efforts to ascertain ways and means of increasing rate of production and decreasing unit costs—largely with the view of substituting electric power wherever possible, since no other form of energy affords equal flexibility and economy of application. Almost invariably, the speed reducer has proved an indispensable unit in the power transmission. For example, the paper machine has been given much attention and compact speed reducer drives with magnetic clutch and taper pulley have been brought out to replace the long familiar drive of slow speed machines powered from a transverse shaft through wooden mortise gears and its taper pulley and cumbersome mechanical clutch. This is but one of the many recent developments in paper mill transmissions which incorporate approved modern speed reducing units, but it well exemplifies the movement to increase production, save labor and decrease wastage through the flexibility and efficiency of electric power drives correctly applied.

In the paper mill, there are situations where the regulation of machine speeds is best secured through the agency of transmissions forming an integral part of the machine, through belts, chains or gearing, but these when compared to conditions in other industries are relatively infrequent and there are numerous other mechanisms in the mill and power plant which are not provided with such facilities and which must be driven at a very different speed from that of any available power unit.

Many of these mechanisms are situated so that the transmission of power to the point of its application by belts, chains or ordinary gearing entails the introduction of complications and inefficiencies readily avoided by the use of standardized speed reducers. In other instances, such high speed ratios are necessary that the required speed transformation cannot be secured through any system of compounded belt or chain drives, nor by ordinary built-in gear trains. Or, again, it may be that it is the conservation of

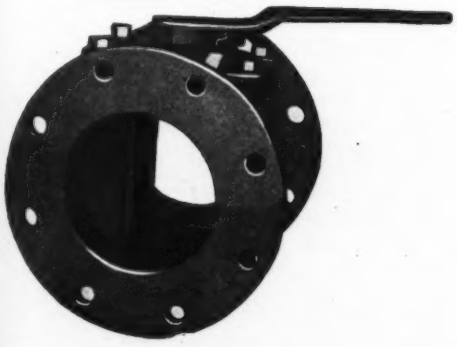
Plant	Equipment	Investment Entailed	Major Improvements Realized	Estimated Annual Saving	Yearly Yield on Investment
.....	1—Speed reducer fan drive.	$1,315.00	Conservation of steam.	$5,475.00	416.3 per cent
.....	2—Speed reducer machine drives.	650.00	Numerous incidental expenses eliminated.	165.00	25.4 per cent
A. P. W. Paper Co.	3—Speed reducer stock pump drives.	.....	Reduced installation costs, decreased maintenance expenses.	159.75	.....
.....	1—Speed reducer elevator and conveyor drive.	1,150.00	Operating costs reduced 27 per cent.	93.29	8.1 per cent

1000 IN USE

Testify to their Serviceability & Economy

Designed to serve the need of paper mills for valves that will not plug, the Valley Plug Valves have increased in popularity ever since they were introduced. This wide acceptance, as shown by the 1000 in use today, really testifies to their serviceability—and economy.

TYPE
STRAIGHT-WAY



Valley Plug Valves are made without ledges, gates and sharp corners. They are easier and quicker to operate than ordinary valves—occupy a minimum of space and can be placed in any practical position required. Angle-positions of the valves do not affect their operation. Use under unusual conditions has increased their popularity with paper mills.

Valley Plug Valves operate on a rotating principle—made of cast iron and equipped with a brass plug ground into position. They will last a long time.

Complete information is contained in our special booklet on Valves. Let us send you a copy.

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Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

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Western Mfg. & Sales Div.,
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space by and the compactness of speed reducers which makes their use mandatory.

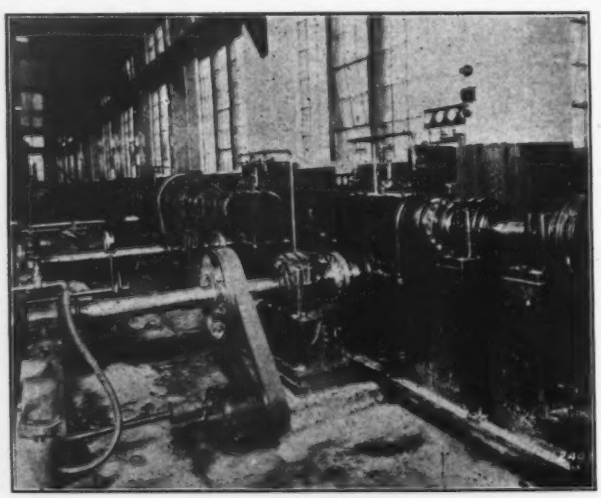
The speed reducers which are now recognized as standardized units in the machine trade fall into five general classes, or types, which in order of their simplicity of design may be termed worm, mill type, spur, planetary and non-planetary gear mechanisms. Each type is very compact and when properly designed and constructed is decidedly efficient. Each type, also, can be purchased for less money than that represented by the margin between the cost of low and high speed motors of similar capacity. That is, the high speed motor and suitable speed reducer will cost less than a low speed motor of the same power capacity without a speed reducer and very much less than such a motor with provisions made for further speed reduction, as is generally required.

Worm Gear Speed Reducers

The simplest type, from the point of view of few parts, is the worm gear speed reducer, consisting essentially of a worm gear meshing in an oil bath with an accurately proportioned worm mounted on the high speed shaft, the whole mechanism being housed in a close fitting casing. These speed reducers are made for transformation ratios of from 4 to 1 in a single stage, or step, to 100 to 1 and in two stages of reduction for ratios of from 100 to 1 up to 10,000 to 1. They are procurable at present with capacities up to 500 hourse-power and are highly efficient, as well as compact.

It is not the intention to enlarge upon the developments in gear and worm proportions, actuating tooth shapes and the many refinements in design and construction which have transformed the old inefficient worm gearing into a distinctly efficient mechanism of high order with a peculiarly effective combination of rolling and sliding tooth action. It will suffice to state that with certain speed ratios, mechanical efficiencies of 97 per cent, or better, have been realized under ordinary operating conditions.

With this type of speed reducer, power is delivered at right angles

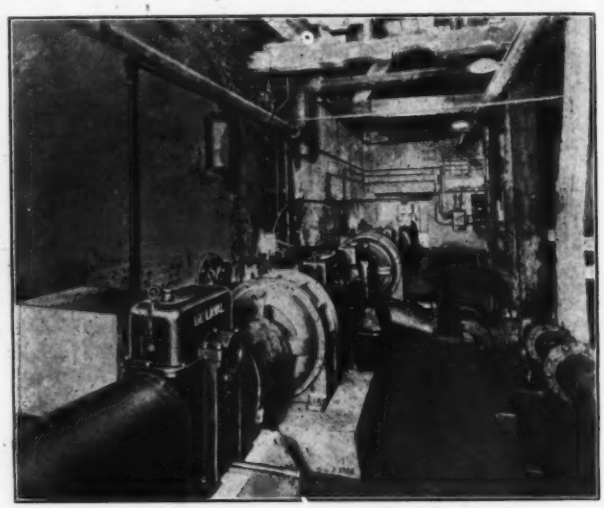


Courtesy of The Cleveland Worm & Gear Co.

PROFITABLE SPEED REDUCER UNITS IN THE PLANT OF THE FRANK SMITH PAPER CO., MIDDLETOWN, OHIO.

to the power unit axis, so keeping the motor or turbine out of the plane of the driven machinery and permitting the closer arrangement of machinery without sacrifice of valuable aisle space. This may be a very dominating consideration when laying out a mill to the best advantage or when rejuvenating a plant by improving layout and driving provisions. The unit has distinctive ability to run at very high speeds, worm speeds of up to 4,000 r.p.m., or more, being accommodated under heavy and exacting service conditions. It is particularly long lived, as it maintains its high efficiency for long periods, since the operating action of the gear and worm is substantially identical to the action of the hob employed for generating the gear teeth. Any wear which may occur does not destroy the gear tooth profile nor modify the meshing surface of the worm thread, so that the efficiency of the unit is not impaired by wear.

One of these worm speed reducers has been transmitting 125 horsepower, with a worm of 3,200 r.p.m., from a small steam turbine to a large fan supplying forced draft to a bank of boilers. The installation has now been running continuously for some six or seven years and has maintained an efficiency of approximately 94 per cent. It replaced a vertical steam engine drive and effects an



Courtesy DeLaval Steam Turbine Co.

THREE 75-HORSEPOWER MOTOR-SPEED REDUCER STOCK CHEST DRIVES

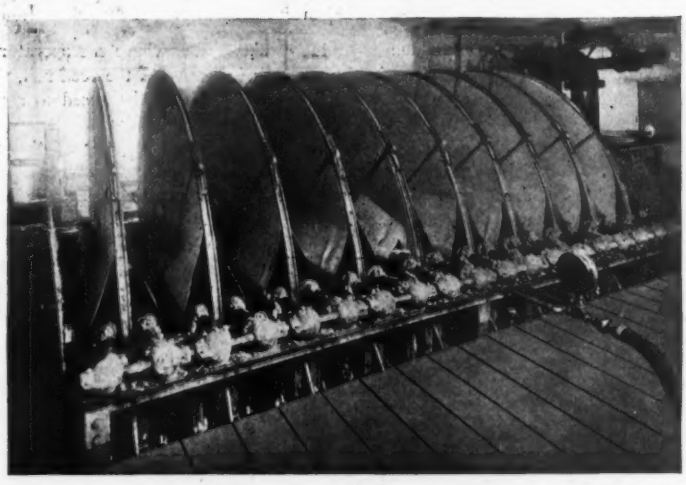
annual net saving in steam valued at $5,475.00. The installation cost considerably less than $1,500.00.

At the Albany plant of the A. P. W. Paper Company, three worm gear unit drives on stock pumps cost 75 per cent. less to install than ordinary gear and pinion drives, effecting a net saving in labor alone of $162.00. A saving of $159.75 a year was also realized in upkeep expenses. Fourteen other of these efficient speed reducers are also employed in this same plant, four on press roll drives on individual paper machines and ten on dry roll drives on another paper machine.

Still another installation of worm gear speed reducers which may well be cited is that of 75 such units driving conveyors, calenders, etc., where some have been in virtually continuous operation, perfectly satisfactorily, under heavy load conditions for some eight to ten years. It is conservatively estimated that their lives will be at least fifteen years. Replacing spur gears and chains, their total operating cost per unit amounts to a trifle over 11 cents per 8-hour shift. In this particular case, the units have saved floor space valued at over $500.00 a year and being employed with high speed motors they have saved several times their initial cost in avoiding the outlay in the more costly low speed motors which would otherwise have been entailed. Increased production, incident to more dependable operation and smoother positive action, is claimed to have wiped out the entire cost of the installation in about three years.

Mill Type Speed Reducers

The mill type of speed reducer, also used very extensively in paper mills, is in reality simply a train of compound gears revolving on fixed axes in an oil bath and compactly arranged in a substantial housing. The gears, of course, are generated with the utmost precision and the bearing constructions are of approved anti-friction types. In order to realize the high mechanical efficiency essential for mechanisms of this variety, helical and herringbone gearing are quite generally employed, although there are some efficient mill type speed reducers manufactured which employ straight tooth spur gears. However, the smaller mill type units—



A 9 ft. diameter—10 disc American Filter operating as a save-all at the St. Maurice Valley Mill, Shawinigan Falls, Quebec.

Saving Fine Fibers To Help Make A Better Sheet

AS FINE FIBERS, recovered on American Filters, pass along into the head box, they get all tangled up with the longer fibers.

In this way they are ready to fill in the minute spaces in the sheet. They help lock all the fibers together.

This not only fills in the sheet but also improves its finish.

Saving of fibers that otherwise would be lost is but the beginning of a series of advantages to paper mills that install American Filters.

Improved operations all along the line is the composite result.

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Groundwood Deckers or Thickeners
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Combined Bleach Washers, Deckers and Save-Alls

UNITED FILTERS CORPORATION

Main Office and Laboratory, Hazleton, Pennsylvania

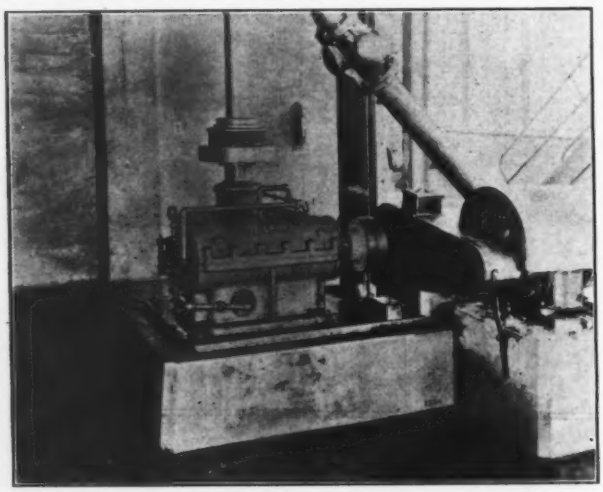
New York Chicago Salt Lake City Los Angeles
Export Office: 25 Broadway, New York Code Address: Unifilter, New York

quite respectable speed transformers in themselves—are, now that herringbone gearing can be cheaply and accurately generated, of this distinctive form, the helical construction being more commonly employed for the transference of heavy powers only and at comparatively low speed ratios.

Where the helical gear construction is used, also frequently for second, third and fourth stages in herringbone gear reducers, the helical gears are usually installed in balanced pairs, of opposite obliquity, in order to equalize the axial thrust most effectively and avoid too great dependence upon thrust bearings. The large double helical speed reducers are usually limited in speed ratio to about 25 to 1 in a single reducing stage, but may be obtained with almost any feasible power capacity. Occasionally, where transmitting large blocks of power, as in handling the output of a large steam turbine or of a relatively slow moving water wheel where an increase in speed for generator drives is advisable, two double pinion members may be employed.

The small herringbone mill type speed reducers, however, are usually of greater interest to the paper mill and an excellent example of their effective utilization in driving of calenders at the plant of the Champion Coated Paper Company, at Hamilton, Ohio. Sixteen calenders were so equipped in 1924, ten more in 1926 and at the present time eight more such calender drives are being installed, making thirty-four calenders in all equipped with herringbone gear mill type reducers, direct current motors and controls. The calenders are now being run at a maximum speed of about 850 feet per minute, the paper speed at high varying from around 700 to 850 maximum, and the calenders to which these drives are connected vary in size from 40 to 80 inches.

The Mead Pulp and Paper Company at Chillecothe, Ohio, employ very similar calender drives. In this installation, the largest calender driven by the herringbone speed reducers is one of 136 inches and the smallest one of 70 inches.

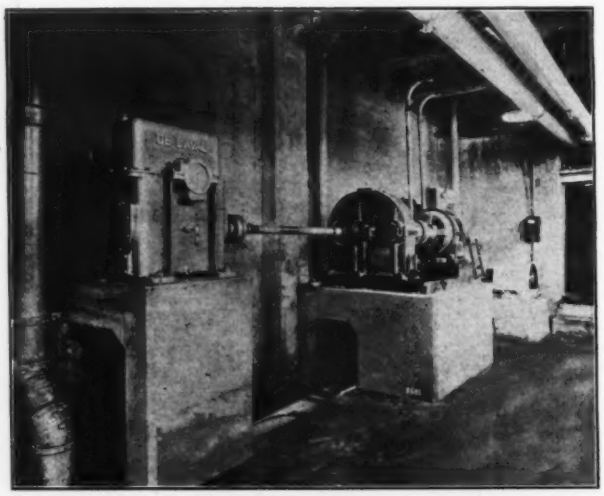


Courtesy DeLaval Steam Turbine Co.

15-Horsepower (1,200 r.p.m.) Motor-Speed Reducer Unit Driving Vertical Digester Tank. Speed Reductions: 40 to 1

In both these installations, variable speed direct current motors are connected to the herringbone speed reducers by means of flexible couplings and the gear is coupled to the bottom roll of the calender through so-called misalignment connectors, the roll shaft carrying a flanged pulley for driving the feeder roll. Electrical control is exercised through an automatic push button device and provides a very convenient method of regulating the wide variations in speed which are secured. The minimum speed of the motor turns the calender at a paper speed of about 50 feet per minute, at which pace the operator can thread easily and with a high degree of safety. With the switch cotton control, the paper speed is then gradually and quickly accelerated to the highest speed of operation, usually about 700 feet per minute, without subjecting the paper to sudden or undue strain. Also, where the operator serves a break or joint in the paper as it comes off the feed roll, the push button control enables him to choke down the speed to a point at which the paper will go through without damage.

The decreased strain on the operator by virtue of this efficient drive and control is said to have increased the production of calendered paper by approximately 25 per cent, and to have dispensed with fully half the threaders formerly required. Also, by virtually



Courtesy DeLaval Steam Turbine Co.

7½ Horsepower Motor Driving Agitator Through 24½ to 1 Ratio Speed Reducers.

eliminating paper wastage the waste from such cause has been decreased by fully 90 per cent. Improvement in upkeep and power consumption, through the use of these herringbone mill type drives, has also effected a saving over such costs with the former variety of belt and spur driven calenders of from 15 to 20 per cent.

Another interesting installation of herringbone mill type speed reducers in an establishment at least related to the paper industry are those at the Long-Bell Lumber Company, Longview, Wash., where in one mill there are 156 single reduction and 253 double reduction speed reducers and in another mill 132 single reduction units and 210 two-stage reducers, a total of 751 speed reducers connected to motors ranging from 3 to 100 horsepower. The total load handled by these numerous units totals to some 7,500 horsepower, an average of 10 horsepower per reducer. With this layout, it is estimated that about 3,000 horsepower at least is saved over the output required when using belts, rough gears, flat boxes, frictions, etc., the average mechanical efficiency of the double reductoin units being 97 per cent, and of the single reduction gears 98 per cent.

Speed Reducers With Shafts in Line

The other three varieties of standardized speed reducers, those of the spur gear, planetary and non-planetary types, have the common distinction of having their high and low speed shafts in line, giving the three varieties when assembled a very similar external appearance. In each instance, the high speed shaft carries a firmly attached small gear, or pinion, which engages with several, usually three, secondary spur gears.

In the spur gear reducer construction proper, these secondary gears form an integral part of compounded gears journaled on jack shafts held on fixed centers. The pinion sections of these compound gear members engage a central gear which forms the larger section of a compounded gear, the pinion section of which serves as a driving member, in a multi-stage unit. In a one stage reducer of this type, with the usual construction of secondary gearing at 120 degree spacing, eight spur gears are employed; in a two stage reducer, sixteen gears; and so forth. Despite this multiplicity of gears, the efficiency of these spur gear reducers is extremely high and the units find much favor in paper mill service.

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C	Taxes	State & County $18 *per* $1,000 *on* 60% *Valuation Basis*

"A-B-C" *of* Paper Mill Profits *in* *Southern Alabama*

Apply these figures to your own mill:

How much cord wood did you use last year?
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Figure the cost of your mill operation on this A-B-C basis.

Then *figure the cost* of your mill on South Alabama's A-B-C basis!

Add the additional favorable features listed here, then *compute your profits* on the Alabama basis, and you will see why the paper-making industry is looking to South Alabama for new mill sites.

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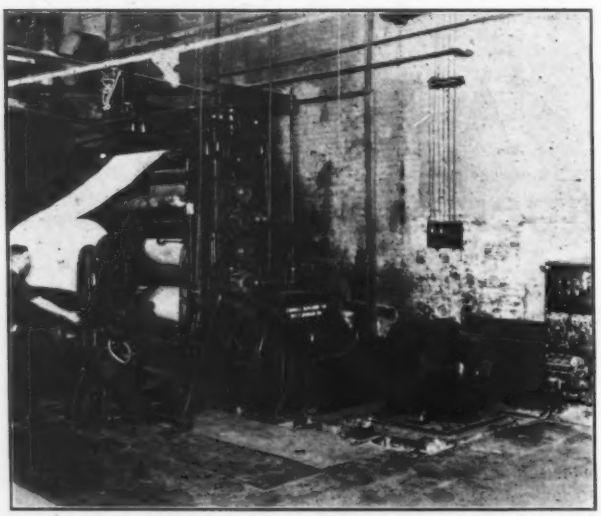
In the planetary gear reducer construction, the high speed pinion engages secondary planetary gears, also usually at 120 degree spacing, which are free to revolve on studs projecting from a free-running concentrically mounted disc which is keyed to the slow speed shaft, in a single stage unit, or to a central pinion serving as a high speed member in the following stage, in multi-step units. The final disc with its planetary gears forms the slow speed member of the reducer. In this construction, five gears and a revolving disc are required for each reduction stage, two less functioning parts per stage than in the case of the standard spur gear speed reducer.

In the non-planetary speed reducer, the high speed pinion also engages with embracing intermediary gears, but these gears are not free to revolve about an orbit as the planetary construction, but turn on fixed axes and engage a free running internal gear. The latter is keyed to the slow speed shaft of a single stage reducer or to a central pinion gear serving as a drive member in a multi-stage unit. With this construction, with intermediary gears mounted on 120 degree spacing, the functioning parts, all gears, number five per



Courtesy of Fawcus Machine Co.

SPEED REDUCER CALENDER DRIVE AT THE CHAMPION COATED PAPER COMPANY, HAMILTON, OHIO

stage of reduction, the smallest number per step of the three types of speed reducers with high and low speed shafts in line.

All three varieties, however, are highly efficient mechanisms and extremely long lived, requiring virtually no attention other than that of very occasional lubricant replacement and change. Consequently, they are well suited to paper mill service, for which they have become exceedingly popular. The fact that the high and low speed shafts are not only in line but revolve in the same direction makes a strong appeal in many cases, particularly as the reducer units are small and compact and can readily be mounted so as not to occupy space in demand for other purposes. The intermediary gears, being several in number and symmetrically arranged effectively divide service and minimize strains on driving and driven units as well.

The operating simplicity of the units is forcibly illustrated in a spur gear speed reducer drive for a type of rotary mixer. A 3-horsepower motor operating at 1,140 r.p.m. is the driving unit and the mixer is required to rotate at between 15 and 16 r.p.m., thus calling for a speed reduction of 72 to 1. A spur gear speed reducer provides such speed ratio in a compact unit assembly, requiring no adjustment and very little attention, being a simple, highly efficient, enclosed, self-lubricating drive unit, requiring only suitable motor and mixer couplings and a bed plate to accommodate the motor and reducer. A manufacturer's quotation covering such complete equipment, f.o.b. works, amounts to $288.80.

The alternate mechanical drive installation would necessitate at least three separate speed reductions to secure the necessary 72 to 1 speed ratio. A belt or chain drive might be made direct from the motor shaft to a countershaft, securing an initial speed reduction of 4 to 1, or a back-gear motor might be employed. From this first countershaft or the back-geared motor a second reduction of 4 to 1 might be made by means of a chain and sprockets, or by spur gears. Then a final reduction in speed of 4-½ to 1 to the mixer shaft would be required by chain and sprockets or by a gear combination. While the cost of these belts, chains, sprockets, gears, suitable gear guards and casings, bearings, shafts, etc., might be somewhat less than the quoted price for the complete spur gear speed reducer assembly, much valuable space would be sacrificed with the more cumbersome mechanical drive, power losses would be introduced and when erection, maintenance and operating expenses are taken into consideration it is very certain that the much more efficient spur gear reducer drive is considerably the less expensive.

This all important consideration of cost, furthermore, favors all the types of approved modern standardized speed reducers which have been briefly discussed. Each variety has distinctive characteristics of merit, each is highly efficient and the use of any of the five types will conserve power and substantially reduce production costs. The units can be obtained today with any required speed ratio, can be used in parallel if desired to secure exceedingly high speed ratios, and their use makes feasible the realization of the greater economies to be secured through the use of high speed motors, turbines and other power units. In fact, the really efficient use of electric energy necessitates their use, for their employment insures the largest attainable proportion of usable power for a given outlay. A dollar expended for energy in the power plant will deliver the greatest number of power cents value at the point of energy consumption in the mill.

Coty Units Installed at Chagrin Falls

ALBANY, N. Y., September 12, 1927.—The Adams Bag Company, of Chagrin Falls, Ohio, has just completed installation of the first of three rotary bottomer and automatic feeder units ordered from the Coty Machine Company, of Watertown, builders of machinery for making paper bags. The unit was installed under the personal supervision of T. Earl Coty.

The new unit has been tried out and according to word from the Adams Bag Company has turned out 60,000 one eighth barrel bags in nine hours and five minutes, the machine operating at the rate of 136 per minute. This record is said to be more than double the capacity of the older types of bag making machinery.

The new machine will handle both the heaviest and the lightest grades of paper, including multi-wall tubes. A new rotary folder of original design is incorporated in the unit. It folds, inside the cylinder, two sacks to one revolution, giving a tighter bottom than outside cylinder folding.

The Coty Machine Company will install the two additional units at the Adams Bag plant as soon as they can be assembled and shipped to Chagrin Falls.

Sherman Mill Staff Changes

FELTS MILLS, N. Y., September 12, 1927.—J. J. McLean, who has been superintendent of the Sherman Paper Company for several years, has severed connections with the firm and it is understood will become associated with one of the Watertown mills. Mr. McLean has already left to take up his residence in Watertown. W. Johnston, of Carthage, has succeeded him as superintendent at the Sherman mill.

Before leaving, Mr. and Mrs. McLean were guests of honor at a farewell reception tendered by employees of the Sherman mill. Mr. Johnston, the new superintendent, was also a guest. The departing official was presented with a gold Hamilton watch on behalf of the employees. Mr. McLean responded feelingly and requested the workers to give his successor the same co-operation as he had been accorded while in charge of the mill.

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Vol. LXXXV New York, September 15, 1927 No. 11

PULPWOOD AND PULP PRODUCTION

From the point of view of the production of paper-making materials, 1926 was a record year in the history of the industry. In all respects the figures for 1926, just issued by the Department of Commerce and compiled in cooperation with the Forest Service of the Department of Agriculture, exceed those for any other year, this high level being in close harmony with the general business prosperity during that period.

It has been estimated that the consumption of paper in 1926 was more than a million tons greater than that in 1925, and this estimate is in harmony with the increased production and consumption of wood pulp. An analysis of the pulp statistics for 1926 shows that domestic pulpwood accounted for approximately 45 per cent of the production of paper, while imports of pulpwood and wood pulp from Canada accounted for 41 per cent and imports from northern European countries made up most of the remainder. This analysis shows that the dependence of the paper industry in the United States upon imported materials is continually becoming more pronounced, and the greatly increased imports of wood pulp in 1926 bear out this conclusion. It is significant that for the first time the annual output of news print paper in Canada was greater than that in the United States, although the latter country had been the leader in the manufacture of this commodity and is still by far its greatest consumer.

The outstanding feature of the domestic production of wood pulp in 1926 was the large increase in the proportion represented by sulphate pulp. In the past ten years the domestic production of sulphate pulp has increased, on an average, about 45,000 tons a year, while during this same period the increase in imports of sulphate pulp has been nearly 33,000 tons annually. The increase in the consumption of yellow-pine pulpwood, which is the chief constituent of sulphate pulp manufactured in the United States, has been over 59,000 cords annually during the past ten years.

In 1926 the consumption of pulpwood was 6,766,007 cords of which 46.5 per cent was reduced by the sulphite process, 25.5 per cent by the mechanical process, 13.3 per cent by the soda process, and 14.7 per cent by the sulphate process. This compared with 6,092,821 cords in 1925 and 5,768,082 cords in 1924, which were reduced by the various processes in just about the same percentages as in 1926.

In 1926 the total production of pulp was 4,394,766 tons, of which 40.1 per cent was produced by the mechanical process, 35.5 per cent by the sulphite process, 11.3 per cent by the soda process, 11.8 per cent by the sulphate process, and 1.3 per cent were screenings. This compared with 3,962,217 tons in 1925 and 3,723,266 tons in 1924 produced by the various processes in about the same percentages as in 1926.

The average value of wood pulp in 1926 for mechanical wood pulp, not steamed, was $28.38 per ton; of mechanical pulp, steamed, $30.51; of unbleached sulphite, $51.56; of bleached sulphite, $80.68; of unbleached soda, $67.00; of bleached soda, $70.01; of unbleached sulphate, $47.64, and of bleached sulphate, $56.31. This compared for 1925 with $30.08 for mechanical pulp, not steamed; $32.36 for mechanical pulp, steamed; $52.56 for unbleached sulphite; $79.87 for bleached sulphite; $67.70 for unbleached soda; $72.69 for bleached soda; $49.51 for unbleached sulphate, and $69.19 for bleached sulphate. The prices in 1924 were $30.98 for mechanical pulp, not steamed; $34.57 for mechanical pulp, steamed; $54.73 for unbleached sulphite; $82.92 for bleached sulphite; $63.39 for unbleached soda; $73.69 for bleached soda; $50.97 for unbleached sulphate, and $65.30 for bleached sulphate.

The average price of pulpwood consumed reached its peak in 1921 when it was $20.10 per cord, and has shown a steady decline ever since, being $16.20 in 1922, $16.23 in 1923, $16.07 in 1924, $15.48 in 1925, and $14.96 in 1926.

The consumption of pulpwood in 1926 by varieties was spruce, domestic, 2,415,870 cords; spruce, imported, 1,013,155 cords; hemlock, domestic, 1,064,661 cords; hemlock, imported, 10,702 cords; yellow pine, 684,816 cords; poplar, domestic, 212,178 cords; poplar, imported, 210,133 cords; balsam fir, domestic, 254,614 cords; balsam fir, imported, 42,500 cords; jack pine, 137,494 cords; yellow poplar, 134,747 cords; tamarack or larch, 94,695 cords; white fir, 76,421 cords; gum, 49,801 cords; slabs and saw mill waste, 180,667 cords, and all other, 183,553 cords.

The production of wood pulp among the various states in 1926 was Maine, 945,700 tons; New York, 822,131 tons; Wisconsin, 712,565 tons; New Hampshire, 248,600 tons; Pennsylvania, 233,258 tons; Michigan, 200,604 tons; Washington, 199,164 tons; Minnesota, 190,454 tons; Virginia, 163,506 tons; Louisiana, 137,571 tons; Vermont, 46,376 tons; Massachusetts, 34,903 tons; California and Oregon, 178,841 tons, and all other states, 281,003 tons.

The imports of wood pulp in 1926 were 1,731,413 tons, valued at $91,230,740, an average of $52.69 per ton, as compared in 1925 with 1,663,614 tons valued at $81,834,453, an average of $49.19 per ton, and in 1924, 1,522,715 tons valued at $75,742,871, an average of $49.74 per ton.

COMMERCIAL FORESTRY CONFERENCE

Plans for the Commercial Forestry Conference, to be held by the United States Chamber of Commerce in November, have been advanced another step with the organization of the general committee which will formulate a program for the meeting looking to the discussion and definition of a practicable policy of commercial forestry which will assure a permanent supply of timber to meet national industrial requirements.

Director Everett G. Griggs, president of the St. Paul and Tacoma Lumber Company, Tacoma, Washington, has accepted the chairmanship of the committee. D. C. Everest, secretary and gen-

eral manager of the Marathon Paper Mills Company, Rothschild, Wisconsin, will be vice-chairman. As president of the West Coast Lumbermen's Association and the National Lumber Manufacturers' Association Director Griggs has given much attention to the problems of the industry. Mr. Everest is president of the American Paper and Pulp Association.

The personnel of the committee also includes: Dr. Hugh P. Baker, Executive Secretary of the American Paper and Pulp Association, Milton E. Marcuse, president of the Bedford Pulp and Paper Company, Richmond, Va., and others.

The first meeting of the general committee was held September 13, at the Congress Hotel, in Chicago.

Mexican Paper Mills Report Consumption Heavy

There are five paper mills in Mexico with an invested capital of $12,012,797 according to J. M. Bejarano, secretary of the Mexican Chamber of Commerce here. During the year 1926 raw material used by these mills amounted to $3,306,221, of which $1,508,467 covered domestic materials and $1,797,754 was paid for materials imported from foreign countries. (Figures in Mexico currency. One Mexican dollar equals about 50c United States currency.)

The total production of paper during the year was 23,919 long tons at a cost of $6,444,701; 21,789 tons of paper were sold, with a value of $7,827,359, and 171 salaried employes worked in the five paper mills, receiving salaries totaling $524,697. The total number of workers was 1,806, and wages received by them amounted to $1,942,628.

The number of working hours during the year was 16,228, and the consumption of electricity amounted to 33,063,602 kilowatts.

The five paper mills produced 11,218 long tons of nesw print, 5,175 long tons of book paper, and the remaining producing composed cardboard, tissue, cigarette, toilet and other grades of paper.

Construction of Oswego Plant Progresses

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., September 12, 1927.—The Taggart-Oswego Paper and Bag Corporation is making rapid progress with construction of its new plant. Work is now progressing on the boiler house which will be completed at an early date. David A. Fleishman, who comes from California, has been appointed superintendent of the bag manufacturing unit of the company. He will assume his duties in time to supervise the installation of machinery when the new bag factory is ready.

It is the plan of the company to remove the cement bag machinery from the Watertown mill to the local plant. The Watertown mill, according to present plans, will be used, for making a different line of bags, which will necessitate new machinery.

Fred Kruse will be superintendent of the paper making unit at the Oswego plant. Mr. Kruse has already taken up his residence here. Mr. Fleishman plans to come to Oswego about October 1.

Paper Division Studies Foreign Invoices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 12, 1927.—Foreign invoices are being studied by Franklin H. Smith, chief of the Paper Division of the Tariff Commission in connection with the preliminary survey he is making for the commission on paper tubes or cones for textile mills. In addition to the foreign invoice information it is understood that Mr. Smith is having some correspondence with manufacturers in the United States. This survey is being made as the result of an application filed with the Commission asking for a 50 per cent increase in the present tariff rate. When this preliminary report has been laid before the Commission it will decide if there are any merits in the application and if so, it will order a regular investigation.

Box Board Production for July

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 12, 1927.—July production of boxboard, based on reports to the Department of Commerce by 92 firms operating 119 plants, reports for earlier months including three concerns now out of business, was 78.8 per cent of capacity, as compared with 85.7 per cent in June and 82.6 in July, 1926. In the following table the capacity data vary according to the normal number of working days in each month.

BOXBOARD

Year and Month	Operation			Production			New Orders	Unfilled Orders (end of month)
	Inch hours		Per cent of	Short Tons		Per cent of		
	Capacity	Operated	Capacity	Capacity	Output	Capacity	Short Tons	
1926								
Jan.	10,081,400	8,134,718	80.7	241,377	197,360	81.8	211,263	120,091
Feb.	9,597,504	7,975,249	83.1	230,568	196,965	85.4	183,030	106,269
March	10,797,192	9,161,681	84.9	259,389	225,688	87.0	219,994	104,128
April	10,397,296	8,623,895	83.0	249,782	207,765	83.2	194,824	90,671
May	9,997,400	8,400,090	84.0	240,175	207,498	86.4	200,832	83,452
June	10,397,296	9,139,549	87.9	249,782	221,909	88.8	242,089	109,559
July	10,397,296	8,603,941	82.8	249,782	206,235	82.6	219,271	122,202
Total (7 mos.)	71,665,384	60,044,123	83.8	1,720,855	1,463,420	85.0	1,471,303	.....
1927								
Jan.	*9,997,400	6,998,505	*70.0	*240,175	173,629	*72.3	194,285	105,669
Feb.	*9,597,504	7,583,477	*79.0	*230,568	189,273	*82.1	183,861	102,005
March	*10,797,192	8,627,946	*79.9	*259,389	219,824	*84.7	230,065	114,369
April	*10,397,296	7,771,040	*74.7	*249,782	205,589	*82.3	197,435	101,861
May	*9,997,400	8,147,495	*81.5	*240,175	*199,610	*83.1	*193,516	93,748
June	*10,397,296	*7,912,698	*76.1	*249,782	*214,096	*85.7	*213,127	*95,347
July	9,997,400	7,368,931	73.7	240,175	189,193	78.8	211,875	115,597
Total (7 mos.)	71,181,488	54,410,092	76.4	1,710,046	1,391,214	81.4	1,424,164	.....

Year and Month	Shipments of boxboard	Stocks of boxboard, end of month	Consumption of waste paper		Per cent of Capacity	Stocks of waste paper, end of month	
			Capacity	Consumed		On hand	In transit and unshipped purchases
	Short Tons		Short Tons			Short Tons	
1926							
January	196,544	49,634	223,311	187,915	80.5	172,203	44,477
February	194,704	50,717	223,512	187,871	84.1	166,536	55,035
March	222,018	54,265	251,451	214,046	85.1	154,923	42,971
April	208,281	53,661	242,138	209,245	86.4	149,742	50,480
May	207,934	54,599	232,825	193,892	83.3	140,718	45,327
June	215,931	60,080	242,138	213,912	88.3	139,967	58,820
July	206,591	59,193	242,138	201,582	83.2	145,334	60,482
Total (7 mos.)	1,452,003	.....	1,667,513	1,408,463	84.4	.....	.....
1927							
January	175,528	53,562	*232,825	163,337	*70.2	163,023	38,062
February	189,032	53,327	*223,512	182,322	*81.6	158,222	40,602
March	217,876	54,566	*251,451	209,730	*83.4	155.513	43,789
April	209,944	50,211	*242,138	189,942	*78.4	147,938	46,314
May	*201,182	49,144	*232,825	192,327	*82.6	149,838	59,289
June	211,220	*52,690	*242,138	*184,437	*76.2	*152,071	*43,807
July	193,182	49,381	232,825	180,022	77.3	150,618	51,520
Total (7 mos.)	1,397,964	.....	1,657,714	1,302,117	78.5	.....	.....

* Revised.

Radio Current Applied Industrially

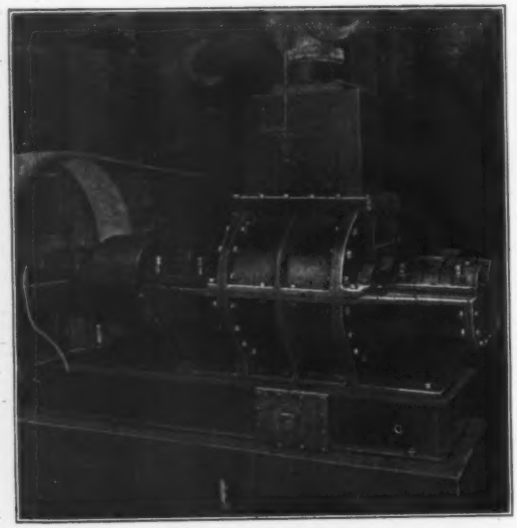
At the fall meeting of the Technical Association of the Pulp and Paper Industry to be held in Middletown, Ohio, at Hotel Manchester, an address of the greatest interest to paper mill men, whether radio fans or not, will be given by W. D. Sommerville describing the apparatus developed by engineers of Eastern Manufacturing Company by which the basis weight of the paper and also its moisture content are recorded and controlled within very narrow limits.

This is done automatically on the paper machine by the use of radio current and has been applied successfully on several machines of the Bangor company and elsewhere.

Waterworks for New Paper Mill

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., September 8, 1927.—Baar & Cunningham, engineers in the Spalding Building, Portland, have completed plans for the new waterworks system that is to be built in Port Townsend, Wash., in order to supply the city and the proposed pulp and paper mill for the Zellerbach corporation. An estimated cost of between $8,000,000 and $9,000,000 was given out, the cost being jointly financed by the Zellerbach Company and the city of Port Townsend.



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Conducted by W.G. MacNAUGHTON, Secretary

Primitive Papermaking

A Dard Hunter Book Which Is a New and Important Contribution To Papermaking Literature

Book Review by Harrison Elliott

The third book treating of the subject of papermaking to be issued from the private press of Dard Hunter covers a comparatively unnoticed field of papermaking and is aptly titled "Primative Papermaking." It is a beautiful book with format and typography in harmony with text. The work commends itself as a remarkable example of artistic printing on a hand press with hand-made and hand-set type on hand-made paper. Each feature is splendid demonstration of the art employed and the whole is the best work yet produced by the author-printer.

Having seen for a number of years the diligent collecting of primitive papers and material relating to their manufacture for this book, and but recently witnessed the printing of the final parts, it is gratifying to know that this phase of papermaking history has been so ably and authoritatively covered and preserved. The book with actual specimens inserted or rare and curious primitive papers from remote parts of the world is a museum in itself. It makes possible the preservation of examples and a record of the technique of what will soon be numbered among the lost arts.

Paper as commonly known today presupposes a formation resulting from the defibering of the raw material, a suspension of these fibers in water and the felting of the mass into a sheet. The step in the process of modern papermaking termed "beating" differs materially from another and simpler kind of beating that for untold ages has produced a form of paper which, though primitive in preparation, was admirably adapted for the purpose intended, had a variety of texture and great serviceability. Due to a misnomer by the early explorers this paper as made in the South Sea Islands was called "tapa-cloth" and has never been really credited for what it is, a true paper. The sheet is a product of beating with squared clubs strips of the inner bargs of trees to expand the strips into sheets of greater area. Defibering does not take place and the natural position of the fibers is practically unaltered, there is an expansion in area and a thinning of the sheet similar to gold-beating. The chief source of this inner bark has been the paper-mulberry. It was long ago introduced into remote regions where it was not indigenous, and is today cultivated to a large extent in Japan where it is used in the making of some of their most beautiful papers. There is early evidence of applied forestry.

This inner bark, or bast, is susceptible to this expansive treatment to such an extent that a sheet may be so beaten that while the cohesion of the fibers is maintained, it will become lace-like in structure and very filmy. But one has only to examine a sheet of the material to be convinced of its papery character. The reason for overlooking this "bark-cloth" as paper was due to the fact that although it presented a receptive surface for various stenciled, printed and drawn designs, primarily its function was to clothe. The early employment of this art cannot be traced like the making of papyrus or the early Chinese paper. Bark-paper was not a medium for recording of history and consequently its origin is obscure. It undoubtedly was a prehistoric discovery and being a truer paper than papyrus, gives paper a remoteness of origin which will probably remain a mystery for all time.

Although the manufacture of bark-paper has not entirely ceased, it bears an analogy to the stone implements which are found widely scattered over the globe. The beating of bark into sheets of paper was practiced in many parts of the world. In Mexico the product had a highly religious significance.

Hunter treats of the foregoing facts in an interesting and semi-technical manner. Primitive design is well illustrated, particularly with regard to what might be considered the prototype of the present-day watermark. Fanciful carvings on the beating surfaces of the beaters or clubs imparted to the sheet varying impressions which produced an all-over design. The illustrations of the implements used in the making of bark-paper were drawn by Hunter from specimens in his own collections and are excellent reproductions affording an authentic record of historical interest.

The treatment of primitive paper for decorative purposes is well illustrated by the actual specimens. Where the material is scarce and sufficient quantity was unobtainable for samples, there are faithful reproductions of the originals in texture and decorative treatment. Among the inserts are specimens of ceremonial papers made by the Otomi Indians of Mexico, rare primitive papers from Java, Hawaiian papers that are interesting examples of aboriginal "watermarking" designs. There are bold and weird colored designs of Fijian origin, curious patterns from the Tongan Islands and oddly decorated bits from Samoa. The Marquesas, Uvea and Austral Islands are also represented by characteristic examples.

The book is an epitome of years of research and collecting and more than 24,000 miles of travel in search of first-hand information. On account of the manual labor involved in its production, the edition is limited to two hundred copies. It is medium folio

in size, consisting of loose sheets, to permit of display in part, enclosed in a durable hand-made portfolio in appropriate colors. Throughout there is a delightful color harmony, some of the specimens of primitive papers from India blend nicely with the natural tone of the sturdy paper on which the book is printed. This stock, a handsome sheet made by hand, has an antique laid marking and the Dard Hunter symbolic watermark. The work of not only a most important contribution to the literature of paper-making, but a foundation upon which such literature must rest.

Plan To Dismantle St. George Mill

[FROM OUR REGULAR CORRESPONDENT]

NORWALK, Conn., September 12, 1927.—Reports several months ago that the mill of the St. George Paper company was to be taken over from the International Paper Company, by a firm that would make cardboard, are set at rest by semi-official information that the company will start shortly to finish dismantling operations begun then and discontinued.

The huge paper-making mill that runs almost the entire length of the building is still intact. It will probably prove the greatest task of the dismantling operation. It is reported that a staff of mechanics will be recruited here for the job.

Superintendents To Meet Sept. 23-24

[FROM OUR REGULAR CORRESPONDENT]

WASAU, Wis., September 12, 1927.—A joint meeting of the Northwest Division Superintendents Association and News Print Service Bureau American Pulp and Paper Mill, will be held at Port Edwards and Wisconsin Rapids, Wis., September 23-24, 1927.

The following papers will be presented: "Safety and Employment," Walter L. Meade; "Stock Regulators," R. W. Haddock; "Modern Boiler Room," W. F. Thiele; "Technical Control in Mill," Allen Abrams; "High Speed News Machines," G. A. Macklem.

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Practical Mill Problems

37

In Number

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Constant Humidity Testing Room

ROTHSCHILD, Wis., September 12, 1927.

EDITOR PAPER TRADE JOURNAL:

The article "Constant Humidity Testing Room" by H. T. Ruff published in the PAPER TRADE JOURNAL for August 25, is very timely. Considerable credit is due the Mead Pulp and Paper Company for devising this simple arrangement.

In arranging our own equipment along the pattern of the Mead installation, we have made a few changes which, we believe, add to the ease and certainty of control. As noted by Mr. Ruff, we find that the Mercoid Thermostat does away with the necessity for relays on the heating system since, on the one hand, it operates the cooler fan and on the other hand an 1100 watt heater.

In the event that the source of cooling water does not give a low temperature, the coil may first be run through the Frigidaire box, provided the water is kept in constant circulation to avoid freezing.

Our experience has also indicated that the vestibule may be eliminated if the door to the room is not opened too frequently.

We have found that the humidity control may be made entirely automatic by using a balance with two arms—the one side operating through a relay to the fan in the dehumidifier; the other side operating, through a relay to the fan in the humidifier. Our humidifier is a multiple tray arrangement similar to the calcium chloride drier shown by Mr. Ruff. Water drops from the top pan down through the others and finally out through a drain. When it is necessary to maintain a high humidity, we place an electric plunger in the top pan.

Yours very truly,
ALLEN ABRAMS, *Technical Director*,
Marathon Paper Mills Company.

TAPPI Fall Meeting

The fall convention of the Technical Association will be held at the Hotel Manchester, Middletown, O., October 5, 6, and 7, 1927. Among the important subjects to be discussed is one on Cooking Sulphite Pulp by D. E. Cable, Oxford Paper Company. He will report the results of more than a year's work studying the effect of three variables.

1. Using Calcium, Magnesium, Sodium, Ammonium as the base in the cooking liquor.
2. Complete impregnation of the chips with the liquor before cooking.
3. Lowering the digester pressure at the end of the operation.

Valuable and authentic data will be presented covering a long range of cooks under controlled conditions.

Another subject to be discussed is Control of Basis Weight and Moisture Content of Paper. In this connection a description of the apparatus developed and used at Eastern Manufacturing Company which uses radio current, will be given by W. D. Sommerville, Eastern Manufacturing Company, Bangor, Me.

The afternoons of the three days will be devoted to visiting the paper mills and machinery manufacturing plants in Middletown and vicinity. A committee with Arthur R. Harvey as chairman is in charge of the local arrangements.

Install Machinery to Eliminate Odor

[FROM OUR REGULAR CORRESPONDENT]

NORTH TONAWANDA, N. Y., September 12, 1927.—Machinery for eliminating the offensive odor given off by the plant of the Tonawanda Paper Company on Tonawanda island has been installed and the odor will shortly disappear, members of the North Tonawanda board of health were informed last week. Much complaint has been made to the health board about the pulp mill odor. The matter was taken up with the company officials at various times and attempts were made in various ways to eliminate the odor without success. Paper company officials, however, believe the latest installation will do the work.

Strength Testing of Wood Pulp

The Proposed Standard Test Conditions for Determining the Initial Strength of Pulp

By G. P. Genberg *

The proposed conditions for the determination of the initial strength of pulp, formulated and submitted at the Annual Meetings in Montreal and New York early this year by the TAPPI Sulphite Committee, in cooperation with the Committee on Standards of the Canadian Technical Section, was received with considerable interest. The proposal was subject to lively discussion at the meeting and numerous comments and constructive criticisms have since then been made.

The purpose of this article is to meet some of these criticisms and to discuss the method further in the light of experimental data collected before and after the presentation of the method.

The outline of the test conditions, as it was presented, is not considered as a complete method by the Committees formulating it, and because one of the most frequently appearing criticisms is the lack of detail, I would like to make a brief statement of the history of the origin of this work.

At the annual meeting in New York 1926 we had with us two representatives of European technical Association, namely, Dr. Rudolf Sieber, at that time connected with Kramfors A/B, and a prominent member of the Swedish and German Technical Association, and Dr. J. L. A. MacDonald a member of the British Technical Section of Tullis Russell of Markinch, Scotland. Both these gentlemen are interested in the testing of the physical properites of wood pulp, and as the time was opportune, an informal meeting was held on the initiative of E. P. Cameron, chief of the Pulp and Paper Division of the Canadian Forest Products Laboratory, Montreal, to discuss the possibility of formulating a standard method that could be used internationally for the strength testing of pulp. At this meeting were present besides Dr. Sieber and Dr. MacDonald, E. P. Cameron, R. N. Miller, W. G. MacNaughton, J. Traquair, J. J. O'Connor, B. W. Scribner and a few others all actively interested in strength testing of pulp.

The Status of Strength Testing

The present status of strength testing was found very unsatisfactory as the old standard TAPPI method (1916) is not generally followed and every laboratory is using more or less modified individual methods. The general practice of testing pulp for strength is to beat a certain amount of pulp for a certain length of time in a ballmill, beater or any convenient beating engine, then form sheets either on sheet machines or hand molds, press the sheets in ordinary letter presses or hydraulic presses and, then dry the sheets in air under ordinary temperature and humidity conditions, in ovens at higher temperatures, or in contact with a heated surface. The importance of evenly formed test sheets and of a standard pressure has been realized during the last few years and the old handmolds and letter presses have been largely replaced by sheet machines and hydraulic presses[1] in the more progressive laboratories.

The beating equipment for the hydration of the pulp for test purposes has been a problem, which has made the beating test very unsatisfactory. The Abbé ballmill with a porcelain lining is probably most commonly used, but as pointed out by Hall[2] and Genberg[3] the wear by the pebbles on the lining with continued beating causes an increase in the mineral matter in the pulp. Moreover it has been found that it is almost impossible to get two jars with linings of the same porosity and hardness. The result is that by beating the same pulp in two different ballmills the same length of time, the pulp will have different contents of mineral matter and consequently show different strength properties. The laboratory beater is a more logical beating engine but due to difficulties with the control of the beating, this apparatus has not found as ready an application as the ballmill. The Lampen Mill[4] is used to some extent in Sweden and Finland but has not received much attention on this continent. This mill[5] consists of an ellipsoidal steel casing with a single ball of such size that it fills the lower part of the casing almost completely.

At the informal meeting in New York just referred to, the method of testing pulp in unbeaten state as first proposed by R. B. Roe was given considerable attention. The principal objection made to this method was the difficulty in preparing uniform sheets from unbeaten pulp. With some care in having the proper dilution of the stock in the deckle box and by selecting a proper baseweight of sheet this difficulty has been minimized.

The suggestion was made that the American associations (TAPPI and Canadian) should draw up a simple method for testing the unbeaten strength which could be circulated between the different Associations, discussed and finally agreed upon by all parties, and which could serve as a basis for further work.

Strength testing and related problems has been a standing subject on the program of the TAPPI Sulphite Committee for the past few years, largely due to R. N. Miller's vigorous work[6], and when a new Sulphite Committee was appointed after the 1926 Annual Meeting, it took upon itself to follow up the suggestions made at the informal meeting. Cooperation was therefore established with the Standards Committee of the Canadian Technical Section, of which E. P. Cameron is Chairman, and with Mead Pulp & Paper Company, Chillicothe, O., where a tremendous amount of work has been done on this phase of pulp testing. H. W. Laymon of this company has rendered a most valuable help to the Committee, and through his cooperation and the Canadian Technical Section and the TAPPI Sulphite Committee the proposed standard test conditions for determining the initial strength of pulp as presented at the meetings was formulated.[7] Originally the outline was intended for sulphite only, but it was found advisable to have it cover all classes of pulp, Mechanical pulp, soda, sulphite and sulphate.

From the foregoing, it is apparent, that the outline presented was not intended as a complete cut and dried method, but was only a simple outline of the general steps and conditions under which the test should be carried out, and which if generally agreed upon could serve as a basis or foundation for the formulation of a detailed pulp testing method. While this was the sole purpose of the outline, sufficient detail as to sheet formation, pressing and drying was included so that the only additional detail really required are specifications regarding the disintegration of the pulp and the construction of the sheet machine and press.

The outline was carefully formulated on the basis of experimental data and of the experience of those assisting in this work. After formal approval by the two Committees, the proposal was presented at the Canadian Technical Section meeting in Montreal (Jan. 1927) and the Sectional Meeting on Sulphite at the 1927 TAPPI Annual meeting in New York. The Canadian Technical

* Chairman TAPPI Sulphite Committee. Chief Chemist, Fraser Companies, Limited, Edmundston, N. B.

[1] Paper Trade Journal, Nov. 20, 1924, p. 185.
[2] Paper Trade Journal, July 23, 1925, p. 31.
[3] Tech. Assoc. Papers, Series 8 (1925), p. 41.
[4] Pappers and Trävarutidning Finland, No. 4, 1922.
[5] Hall, Paper Trade Journal, July 23, 1925.
[6] Miller, Tech. Assoc. Papers, Series 9 (1926), pp. 130, 134.
[7] Tech. Assoc. Papers, Series 10 (1927), p. 117.

Section approved it as a tentative standard and a motion was entertained at the TAPPI New York Meeting, that the outline should be recommended to the Committee on Standard Methods for adoption as a tentative method for one year.

The original suggestion was also carried out in that the proposal was brought to the attention of the European Associations as well as many authorities on the subject, by W. G. MacNaughton, Secretary of TAPPI. It is most gratifying to the originators to see that this work is at least considered worthy of criticism. Only by discussion and constructive criticism will it be possible to carry this work to a successful conclusion. The developments so far have been very satisfactory and it is as hoped that by determined efforts and the endorsement of the members of the Technical Association it will be possible to formulate a complete method that will be used by every one concerned with strength testing of woodpulp.

Discussion of Various Points

COMMENTS BY ZELLSTOFF FABRIK WALDHOF

Every comment and criticism will not be taken up separately but will be referred to in the discussion which follows on each step in the outline.

In reference to the criticism regarding the lack of detail contained in the comment from a member of the staff of Zellstoff Fabrik Waldhof and voicing the opinion of the German Cellulose Manufacturers, the comment reads: "Exact methods of measuring the fiber strength are not approved by practice or that the method is still too inexact to give so exact results as to serve as a general rule."

This comment apparently means that the opinion is that the method is not based on merits and experience and that concordant results can not be obtained by following the specifications in the outline. This is an unjustified criticism because the proposal is based on many years' combined experience of several large laboratories doing research as well as those of producers and consumers of pulp. The outline is followed for the valuation of pulp, from the point of view of purchasing as well as distribution and is followed daily in actual papermill practice by many large concerns.

In the outline the following conditions have been specified and standardized:—

1. Area of test sheets.
2. Basis weight of test sheets.
3. Rate of sheet formation.
4. Pressure and exact method of pressing.
5. Rate of drying.
6. Humidity and temperature conditions for testing the test sheets.

The following was omitted from the outline, not on account of oversight on the part of the Committees, but purposely as will be explained.

1. Sampling of the pulp.
2. Details of disintegration.
3. Construction of sheet machine and press.

Because opinions differed as to the effect of the moisture content at the time of testing, specifications for sampling were omitted pending further discussion on the matter. The method of disintegration is being investigated further by the Canadian Forest Products Laboratory in Montreal. Details of construction of the sheet machine and press are desirable but are not necessary for concordant results, provided the conditions are strictly followed. No data are available as to the merits of the various apparatuses at present used for these purposes, which makes it very difficult to specify any definite details of construction and expect an agreement. The work now in progress however includes a survey of the machines in use and those used by the majority may be recommended as standards.

COMMENTS BY M. A. KRIMMEL

Comments similar to the ones made by the member of the German Association are received from M. A. Krimmel, Chairman of the Committee on Standard Testing Methods, who says that he "does not approve of the method as it now stands as a tentative standard method, because it does not include the following necessary details:—

1. Method for accomplishing disintegration without cutting or hydration of the fiber.
2. Number of test sheets to be made and number of tests to be made on each sheet.
3. No statement as to how the sheets shall be dried whether with or without tension.
4. No standard apparatus specified or described for testing the sheets.
5. No statement regarding the initial moisture in the pulp at the time of testing."

The comments regarding the disintegration of the pulp and its initial moisture content are well founded and as mentioned before these two matters are held in abeyance pending further investigation. The question of initial moisture content is covered to some extent in the proposed method of sampling which is dealt with further on.

Regarding the number of test sheets and number of tests to be made on each sheet this can not very well be specified without specifying the kind of tests to be made. The last paragraph on sheet making the following specification is given: "A sufficient number of test sheets shall be made so that a sufficient number of determinations can be made to insure an accurate average of each strength property desired." The number of test sheets will of course be governed by the area of the sheets and the number of strength properties for which the sheets will be tested. In a method intended for international use it will be rather difficult to specify these properties because of the different opinions of American and Continental laboratories as to the most important properties. In U. S. A. and Canada, the Mullen test has been adopted as one of the principal tests for paper and it has unfortunately got such wide application that attention has been diverted from other properties than the bursting strength. I say unfortunately because the Mullen test has been so dominant that other properties have been lost sight of and "strength" of pulp has been measured in terms of bursting strength only, resulting in a general confusion as to what actually is meant by "strength" of pulp. The Mullen test is undoubtedly a valuable test and should be applied to pulp and paper but we must not forget that it measures only one thing, the bursting strength. Other properties such as folding endurance, stretch, tensile strength and tearing strength are equally important and in order to get a complete picture of the "strength" of the pulp or a sheet of paper it is almost necessary to test the specimen for several or all of these properties.

Many American laboratories have adopted the Mullen test in preference to other tests and only recently the importance of the tearing strength test has more generally been realized.

In Europe the Schopper or tensile and stretch tester has had the same position as the Mullen tester in America. The folding tester has its use for certain classes of paper, where folding endurance properties are desired.

In work done for the Technical Section of the Canadian Pulp & Paper Association by Arthur A. Scott of Abitibi Power & Paper Co., on the influence of the number of bursts per sheet and the number of sheets per set in strength testing of pulp it was concluded that by using the Peters' formula for computing the probable error of the mean value, four bursts per sheet are enough for an accurate average value of the strength of the sheet and that in half of the sets investigated not more than three sheets were necessary to give the desired accuracy and in

two thirds of the sets four sheets would suffice. In four cases the first sheet lay within the range of acceptability.

No similar conclusive work on other properties is known but experience has shown that for an accurate tearing strength test with the Elmendorf tester, it is advisable to make 16 tears on two sheets.

As a whole, it can be said that the larger the number of individual determinations made the more accurate is the average obtained.

Because of these different kinds of tests it was believed inadvisable to specify a certain sheet area or any certain number of test sheets but to specify such limits for the area that sufficient area is obtained from complete tests on one hand, and proper formation of the sheets on the other. The sheet area was therefore specified "not less than 36 square inches and not more than 81 square inches." The smaller area would be sufficient if only Mullen and tear tests are used while the larger area is necessary if the tensile test is also to be made. This latter was emphasized by Gosta Hall at the discussion of the method[8] at the Sulphite Symposium in New York. For the same reason the properties and methods for determining these properties were not specified. As W. G. MacNaughton said in Montreal "the sheets will be available to make whatever tests are desired."

Regarding Mr. Krimmel's criticism as to lack of description of testing apparatus the foregoing may be sufficient explanation why these details have been left out. It is of course understood that the methods and instruments for paper testing standardized by the Committee on Paper Testing and adopted by the Association automatically become standard for testing the pulp sheets. The specification under the heading Testing of Sheets covers this completely "The sheets shall be tested for strength properties at 65 per cent relative humidity and 70 degrees F. temperature on apparatus recognized as standard."

Data of Experimental Work

The results referred to in the following discussion are derived from average values of tests made on some 1300 test sheets made under varying conditions. All sheets are made from bleached sulphite where no reference is made to any other class of pulp. For each individual test a set of four sheets were made and several tests were made of each particular variable. For instance, the effect of initial moisture content is illustrated by average values of 13 tests each. The effect of quantity of dilution water used for sheet formation is an average of 12 tests each. Duration of disintegration and varying weights of test sheets are illustrated by 4 and 10 tests respectively. The Mullen and tearing test values of every set are derived from the average of 5 bursts on each sheet or 20 bursts per set and on the total in grams of 8 tears on 2 sheets each, respectively. In other words the investigation covers the production of 1300 sheets for 325 individual tests and the observation, recording and recalculation of 6500 Mullen determinations and 2600 Elmendorf readings.

These data refer to the sheets pertaining to the results in this article only. The outline itself was based on a much greater number of tests. The work has been done partly in the Laboratory of Mead Pulp & Paper Co. and partly in that of Fraser Companies Limited. These statistics are presented to emphasize the liability of the figures quoted in this article.

The Method

In the following investigation the method as presented and published in the various trade journals[9] has strictly been adhered to except that the various steps studied experimentally have been varied. No additional care in carrying out the tests were taken than for ordinary routine work. The results quoted illustrate therefore what can be obtained under ordinary working conditions. All results are expressed in terms of Mullen and Elmendorf determinations and are computed according to the method in per cent points per pound which is the same as points per 100 pounds base weight.

[8] Tech. Assoc. Papers, Series 10 (1927), p. 254.

Reproducibility of Results

It might be advisable to consider first the reproducibility of results by following the specification and directions in the outline.

The tests for this purpose were made by cutting several portions from the same sample of pulp to an approximately correct weight. The portions were kept in an air tight can and one or two of them run per day between routine tests.

The results are found in Table 1. A greater uniformity is noticeable in the Mullen tests than in the Tearing tests. The results show that the accuracy of the results fall within average limits of error of ± 1.5 per cent for the Mullen test and ± 2.5 per cent for the Elmendorf test.

Initial Moisture Content

The effect of the initial moisture content of the pulp at the time of testing is a factor which requires special attention if concordant results are to be obtained, and pending further discussion on this point the specification of the method for sampling the pulp was omitted in the proposal. The Committees outlining the method were in doubt whether to include a specification that all samples should be brought of the same moisture content before being disintregrated or if all pulp should be tested at the moisture content as received.

The effect of the initial moisture content is considerably more pronounced when testing pulp for unbeaten strength than when the pulp is beaten prior to testing. The influence of the initial moisture was illustrated in a paper by the writer[10] and some results are quoted to illustrate this point. (Table 1.)

TABLE 1
REPRODUCIBILITY OF RESULTS

Sample No.	Basis Weight 25x40:500 lb.	Mullen pts.	Tear g.	Deviation from Mean Mullen %	Deviation from Mean Tear %
1	122.3	77	139	2.0	7.1
2	123.7	76	141	1.0	5.1
3	123.8	75	150	0.0	3.9
4	124.3	73	146	2.0	0.1
5	124.0	74	148	1.0	1.9
6	124.5	76	146	1.0	0.1
7	123.8	74	153	1.0	6.9
Mean value		75.0	146.1	±1.1	±3.6
			Equals	±1.5%	±2.5%

The difference in the strength properties between slushed and machine dried pulp is realized in practical paper making and the unbeaten strength test brings this difference out very distinctly.

TABLE 2
INITIAL MOISTURE CONTENT

	Mullen	Tear
Slushed	98.7	139.7
Machine dried 88% A.D.	64.0	186.2
Slushed	105.8	146.3
Machine dried 85% A.D.	79.5	175.5

From the paper[10] referred to above is quoted the tabulation of the tests on samples collected on different places on the drying machine which also illustrates the effect of the initial moisture content.

TABLE 3
INITIAL MOISTURE CONTENT

Sample	Per Cent Air Dry	Mullen	Tear
At wet end	42.5	97	124
After 6 driers	47.1	90	135
After 12 driers	51.3	89	140
After 18 driers	58.1	83	142
After 24 driers	65.7	74	149
After 30 driers	73.4	60	143
After 36 driers	80.2	61	154
After 42 driers	89.1	55	165
After 47 driers	91.4	63	159
Oven dried	111.1	28	176

These results show that the Mullen test decreases and the Tear increases with increased dryness.

B. W. Scribner in his comments of the method suggests that all test specimens should be dried to constant weight under standard humidity and temperature conditions prior to testing. This would

[9] Pulp & Paper Magazine, May 5, 1927, p. 573. Proceedings of Canadian Tech. Section, 1925-1926, p. 16. Paper Trade Journal, Jan. 27, 1925. Tech. Assoc. Papers, Series 10 (1927), p. 117.

[10] Paper Trade Journal, Feb. 24, 1927, p. 169. Pulp & Paper Magazine, Apr. 28, 1927, p. 537. Tech. Assoc. Papers, Series 10 (1927), p. 34.

[10] Loc. cit.

facilitate the weighing of a definite amount of the pulp and would make the determination of the consistency later on unnecessary. This procedure would also eliminate the effect of the initial moisture content and would make the results more comparable.

We must not lose sight of the fact that the purpose of any strength testing method is to determine the papermaking value of the pulp and that the initial moisture content is known to have a very decided influence on this value. It would appear logical therefore to test pulp shipments at the moisture content as received. For investigation purposes or in cases where the actual fiber strength is desired, however, it would be important to reduce the pulp sample to the same standard moisture content before being tested preferably by allowing the samples to season in the humidity room under standard conditions. This practice has been followed with excellent results at the laboratory of Fraser Companies.

Sampling

The following is a suggested specification for sampling which is at present under consideration:—"The pulp may be available for test in form of samples or shipments. If a sample presented for testing is not submitted in air tight container and provision is not made to preserve a certain moisture content in the pulp, the sample shall be seasoned to standard weight at 65 per cent humidity and 70 degrees F. temperature.

"Shipments shall be sampled according to the official method, adopted by the Joint Committee of American Paper & Pulp Association, American Association of Woodpulp Importers and the Technical Association of the Paper & Pulp Industry for sampling pulp for determination of moisture content. There should be strict adherence to these rules and the same care of the samples before they are ready for disintegration must be observed as in the case of samples for moisture determination.

A duplicate set of the samples taken for moisture placed in an air tight can to preserve the moisture content, serves well for the strength test. The samples should be kept in air tight cans until ready for disintegration.

R. B. Roe uses the Crossley tool for sampling the pulp shipments and has adopted the practice of saturating the sample with water immediately after it is weighed. By wetting the sample immediately after weighing there is no trouble from changes in moisture if there is delay between weighing and disintegration.

Disintegration of the Pulp

In almost all the comments received some references have been made to the necessity of specifying the method of disintegration so that no hydration or cutting of the fiber takes place. This is an extremely difficult problem due to the sensitiveness of pulp to mechanical and chemical action especially in the presence of water. The apparatus most commonly used for disintegration is a vertical shaft equipped with two or more blades, revolving at a high speed. The time required for complete disintegration by this means will vary with the nature of the pulp, the dryness and the pressure to which the pulp has been exposed. A long-fibered stock, testing about 80 per cent a. d. disintegrates readily, while a short fibered soda pulp that has been heavily pressed is very difficult to disintegrate. The time required for complete disintegration of one pulp can not be applied to another with equal results and as the time required for disintegration by this method has a certain small influence on the pulp it is necessary to devise some disintegration method which can be applied to all classes of pulp with the same effect.

Dr. J. L. A. MacDonald, Tullis, Russell & Co. Limited suggests that dried pulp should be torn in pieces about three inches square and then soaked in water for twelve hours at room temperature before disintegration. He thinks that this would reduce the hydration effect to a minimum but hesitates to say that it would be entirely absent. This suggestion no doubt has its merits but appears impractical as it would delay the test too much. It is also very possible that this method to some extent at least any way would destroy the effect it is desired to measure, namely, the initial hydration of the pulp.

At the discussion of the method at the New York meeting, Mr. Laymon pointed out, that a pulp during disintegration will develop an increase in Mullen test, but usually a decrease in Elmendorf. If a relation could be established between these two tests, and pulp could be evaluated on a numerical basis combining the two, the question of disintegration would not be such an important factor because the changes in the Mullen and the Elmendorf during the disintegration would offset each other.

The following tabulation illustrates the changes taking place in Mullen and Elmendorf tests during disintegration. (Tables 4 and 5)

TABLE 4
DISINTEGRATION

Duration of Disintegration	15 min.	30 min.	45 min.	60 min.	120 min.
Mullen	38.0	45.9	49.6	56.0	59.9
Elmendorf	215.8	213.7	207.2	214.5	202.7
					Ave.

The changes can also be illustrated as follows:

Duration of Disintegration	15-30 min.	30-45 min.	45-60 min.	60-120 min.	Change
Mullen	+ 7.9	+ 3.7	+ 6.4	+ 3.9	+ 5.5
Elmendorf	— 2.1	— 6.5	+ 7.3	—11.8	— 3.3
Total combined change	+ 5.8	— 2.8	+13.7	— 7.9	+ 2.2

Still more pronounced is this relation of changes in Mullen and Elmendorf tests during disintegration in the following tabulation of average results:

TABLE 5
DISINTEGRATION

Duration of Disintegration	5 min.	15 min.	30 min.	60 min.	90 min.
Mullen	60.5	68.5	71.0	80.5	83.0
Elmendorf	177.0	169.5	156.5	156.0	155.0
					Ave.

Duration of Disintegration	5-15 min.	15-30 min.	30-60 min.	60-90 min.	Change
Mullen	+ 8.0	+ 2.5	+ 9.5	+ 2.5	+ 5.6
Elmendorf	— 7.5	—13.0	— 0.5	— 1.0	— 5.5
Total combined change	+ 0.5	—10.5	+ 9.0	+ 1.5	+ 0.1

With this relationship in mind it would be possible to evaluate different classes of pulp satisfactorily even if different lengths of time are required for disintegration.

The Canadian Forest Products Laboratory in Montreal has been working for some time on a method of disintegrating pulp in connection with the Unbeaten Strength Test. The disintegrator is developed from the Daizy churn and has the advantage that the container in which the pulp is disintegrated is of cubical shape so that no swirling takes place. The stock is thrown against the walls of the container which results in a very complete and rapid disintegration. The Laboratory proposes to treat all classes of pulp in this type of disintegrator for a standard length of time and then screen the pulp through a 10-cut plate to separate any lumps of fibers which may remain. E. P. Cameron states that freeness and strength tests of pulp defibered by this method showed no effect of hydration. Sulphite and soda pulp disintegrated completely in 10 minutes and a Swedish pulp that had been run through a Kamyr press and then steam dried, a form which is ordinarily very difficult to disintegrate, after 5 min. treatment was defibered to the extent that 60 per cent passed through a 10-cut screen plate.

This method is very promising and it is hoped that results of further work at the Laboratory will warrant the incorporation of this method as standard for disintegration.

Area of Test Sheets

The reason for specifying certain limits of the area rather than a certain area has already been explained fully and further discussion on this point is hardly necessary.

Weight of Test Sheets

The specifications for the weight of test sheets reads as follows: "The test sheet shall have a weight equivalent to 125 pounds per ream 500 sheets 25 x 40 inches and must not vary in weight more than ∓3 pounds from this basis."

There was some confusion in the minds of some member participating in the discussion in New York regarding the basis weight. In the writer's paper "Relation between Initial Strenth and Strength Developed in Beating of Bleached Sulphite"[1] the results were expressed on the basis of 120 pounds per ream 25 x 38

inches which is the equivalent weight of 125 pounds per ream 25 x 40 inches. The reason for this discrepancy was that at the time this paper was written the basis weight 120 pounds per ream 500 sheets 25 x 38 was included in the proposal. This was later changed to the standard ream of 500 sheets 25 x 40 inches and the ream weight accordingly changed to read to 125 pounds. The actual weight of the sheets referred to in the paper was the same as specified in the proposed outline, only the numerical value of the results are slightly higher because they are expressed in terms of 25 x 38 inches.

The weight of 125 pounds per ream 25 x 40 inches is considered by many to be too high, and many good reasons are given for this contention. We must however not lose sight of the purpose of the method which is to *determine the initial or unbeaten strength of all classes of pulp by all testing methods internationally applied to paper.* The basis weight of 125 pounds is selected so that all tests made on the sheets will fall within the range of accuracy of the testing instruments in use regardless of the class of pulp tested. The following figures (Table 6) give an idea of the range when testing a few different classes of pulp with Mullen and Elmendorf testers.

TABLE 6

	Sulphate Kraft	Unbleached Sulphite	Bleached Sulphite	Bleached Soda	Old Paper Stock	Ground Wood
Average Mullen lbs. per sq. in...	77.5	83.7	125.0	36.2	55.0	40.0
Elmendorf ave. grams	53.0 [12]	29.4 [12]	24.4 [12]	30.9 [13]	27.2 [13]	23.1 [13]
Computed according to specification						
Mullen	62	67	100	29	44	32
Elmendorf	339	188	156	99	87	74

Table 7 illustrates the effect on the base weight on the results computed according to the specification in the method. H. W. Laymon 14 pointed out in his paper that the results are not in exact proportion to the weight of the sheets since as the weight increases the strength results increase faster than the direct ratio between tests and weights. This is particularly noticeable in Tear tests, the Mullen tests being more irregular.

If we examine the individual tests as tabulated in Tables 8 and 9 we find an indication of less deviation from the average for the higher base weights, indicating that it is possible to produce a more uniform sheet when using the higher base weight.

These results are too few, however, to warrant a conclusion. The higher base weight is suggested on account of being adaptable to all classes of pulp rather than to higher reproducibility.

The question of the base weight, however, is still open pending results of an inquiry which will be sent out to the laboratories on this continent and abroad in which, among others, the following questions are asked:—

1. Type of pulp tested.
2. What is the weight of your test sheets?
3. For what properties do you generally test your sheets?

It is believed that responses from this inquiry will be more of a guide for the selection of proper weights than a long and costly investigation of a few laboratories.

Sheet Making:—

The most important part of the specification for sheet making is the optimum drainage time of 12-14 seconds. No comments have been made on this, probably because of the novelty of this detail regarding sheet making. The sheet machine has supplanted the hand mold to a large extent and numerous directions have been published for the exact manipulation of such a machine[15]. In no case, however, has the relation between drainage time, on one hand and, on the other, the temperature of the water, thickness of sheet made, and freeness of the stock, been pointed out. References have been made to a certain standard volume

TABLE 7
WEIGHT OF TEST SHEETS

	Base Weight lbs. per ream	Mullen	Elmendorf
Test 1	59.9	35.0	160.5
	94.8	26.2	163.5
	139.4	40.8	168.0
	178.0	42.4	208.0
Test 2	61.2	44.7	175.0
	79.0	40.9	198.5
	102.8	42.0	211.0
	126.0	44.1	205.0
	149.6	46.0	243.0
	168.7	44.3	201.0
	191.8	42.8	224.0
Test 3	62.0	34.2	189.3
	101.5	34.2	218.0
	141.9	37.7	236.5
	185.5	36.6	214.0
Test 4	62.3	106	125
	82.2	102	140
	101.8	107	141
	124.3	106	176
	147.2	100	158
	168.1	109	179
Test 5	39.1	100	107
	62.8	94	131
	83.3	95	125
	125.7	98	148
	145.8	96	158
	168.2	101	166

TABLE 8
UNIFORMITY OF TEST SHEETS OF DIFFERENT BASE WEIGHT
MULLEN TESTS—

Base Weight	Sheet 1					Sheet 2						Deviation from mean		Per cent Deviation from mean value		
lb.	1	2	3	4	5	1	2	3	4	5	Mean	+	—	+	—	Av.
62.3	64	68	62	68	68	70	66	64	64	65	65.9	4.1	3.9	6.2	5.9	6.2
82.2	82	82	79	86	86	85	80	80	90	88	83.8	6.2	4.8	7.4	5.7	6.6
101.8	105	105	103	110	113	106	107	115	111	112	108.7	6.3	5.7	5.8	5.3	5.6
124.3	130	129	131	132	132	131	130	134	132	135	131.6	2.6	3.4	2.0	2.6	2.3
147.2	142	145	148	145	151	152	152	147	148	146	147.6	5.6	4.4	3.8	3.0	3.4
168.1	175	185	190	193	192	179	174	175	178	189	183.0	8.0	10.0	4.4	5.5	5.0

ELMENDORF TESTS

Base Weight						Deviation from mean		Per cent deviation from mean value		
lb.	1	2	3	4	Mean	+	—	+	—	Av.
62.3	10.0	12.0	8.0	9.0	9.8	2.2	1.8	22.5	18.4	20.5
82.2	14.0	11.4	14.0	18.0	14.4	3.6	3.0	25.0	20.8	22.9
101.8	19.0	17.3	18.0	17.5	18.0	1.0	0.7	5.6	3.9	4.8
124.3	26.0	26.2	29.4	28.0	27.4	2.0	1.4	7.3	5.1	6.3
147.2	31.3	28.0	28.3	28.5	29.0	2.3	1.0	7.9	3.5	5.7
168.1	38.2	39.0	36.0	37.0	37.6	1.4	1.6	3.7	4.3	4.0

[11] Paper Trade Journal, Feb. 24, 1927, p. 169. Pulp & Paper Magazine, Apr. 28, 1927, p. 537. Tech. Assoc. Papers, Series 10 (1927), p. 34.
[12] Two sheets torn at the time to comply with the specification in the adopted method for determining the tearing strength.
[13] Four sheets torn at a time to comply with the specification in the adopted method for determining the tearing strength.
[14] Paper Trade Journal, Feb. 24, 1927, p. 175. Pulp & Paper Magazine, May 5, 1927, p. 573. Tech. Assoc. Papers, Series 10 (1927), p. 37.
[15] Shaw & Bicking, Paper Trade Journal, Nov. 20, 1924, p. 185. Miller, Paper Trade Journal, Apr. 22, 1926, p. 207. Tech. Assoc. Papers, Series 9 (1926), p. 130.

TABLE 9
MULLEN TESTS— UNIFORMITY OF TEST SHEETS OF DIFFERENT BASE WEIGHTS

Base Weight	Sheet 1					Sheet 2					Sheet 3					Sheet 4					Mean	Deviation from mean		Per cent deviation from mean value		
lb.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		+	—	+	—	Av.
39.1	40	35	43	41	39	40	41	40	41	44	41	40	30	38	33	36	40	35	44	43	39.2	4.8	9.2	12.2	23.5	17.9
62.8	56	61	61	57	58	57	58	56	64	62	60	55	57	59	61	62	58	58	58	57	58.8	5.2	3.8	8.8	6.5	7.7
83.3	74	77	78	81	82	87	83	81	84	78	84	77	72	87	84	78	75	72	75	75	79.2	7.8	7.2	9.8	9.1	9.5
125.7	120	124	125	117	121	122	116	124	127	120	125	130	130	120	131	129	119	122	116	123	123.1	7.9	7.1	6.4	5.8	6.1
145.8	139	140	146	146	141	145	137	138	149	135	130	138	140	131	127	147	140	148	148	132	139.9	9.1	9.9	6.5	7.1	6.8
168.2	179	165	163	168	176	163	177	160	163	170	159	159	170	169	160	181	182	175	170	180	169.5	12.5	9.5	7.4	5.6	6.5

ELMENDORF TESTS—

Base Weights	Sheets 1 and 2				Sheets 3 and 4				Mean	Deviation from mean		Per cent deviation from mean value		
lb.	1	2	3	4	5	6	7	8		+	—	+	—	Av.
39.1	5.0	6.3	5.0	4.8	5.0	6.0	5.2	4.4	5.2	1.3	0.8	25.0	15.4	20.2
62.8	9.2	10.0	10.2	10.4	10.8	11.0	10.0	10.8	10.3	0.7	1.1	6.8	10.7	8.8
83.3	12.0	11.8	16.0	14.1	13.6	12.0	12.8	12.0	13.0	3.0	1.2	23.0	9.2	16.1
125.7	22.0	22.0	24.3	24.7	20.0	23.5	24.0	25.1	23.2	1.5	3.2	6.5	13.8	15.2
145.8	25.0	26.8	30.5	34.5	29.3	28.2	26.4	29.3	28.8	5.7	3.8	19.8	13.2	16.5
168.2	31.4	35.6	35.2	37.6	31.2	34.8	37.8	34.9	34.8	3.0	3.6	8.6	10.3	9.5

of dilution water disregarding the effect of these variables. This is a matter of such obvious importance that without attention to these factors the sheet machine can hardly be claimed to be an improvement over the hand mold formerly used. An experienced operator will manipulate the hand mold so that the time required to form the sheet is always the same regardless of freeness of the pulp, etc.

A paper maker varies the consistency in the flowbox of the papermachine according to such conditions as temperature of water, freeness of stock, base weight of sheet to be made and speed of machine, for the purpose of getting a uniform drainage on the wire and, as a result of this, a uniform sheet formation.

Probably the most important means towards uniform sheet formation on a papermachine is to control and maintain a uniform freeness and uniform consistency at the headbox.

When forming test sheets of the same base weight on sheet machines commonly used for this purpose and where the running speed is no factor, the only factors we have to contend with affecting the drainage time is the temperature of the water and the freeness of the stock. By using water of uniform temperature it is possible to construct a table showing the volume of water to be used at varying freeness of stock so that the drainage time will be constant.

Attempts have been made to standardize the wire, the degree of opening for discharge, the length of water leg or degree of suction, etc., with the purpose of obtaining uniformity of formation. By standardizing the optimum drainage time we believe we have made a large step forward and removed the difficulties resulting from the use of sheet machines of different construction. If one sheet machine is equipped with a water leg or suction and another with gravity flow, the only difference will be that with the former machine a larger volume of water will be required in order to comply with the specification. The time required to form the sheet will be the same and the same formation can be obtained on both machines.

Where a water leg is used, Mr. Laymon emphasized the importance of adjusting the discharge orifice, so that the suction does not break during the formation of the sheet.

To illustrate the effect of the temperature of water and freeness of stock on the rate of drainage and the effect of the drainage on the ultimate results, the following tables are submitted. (Table 10, 11.)

TABLE 10
RATE OF DRAINAGE IN SECONDS DURING SHEET FORMATION AT VARYING TEMPERATURES AND VARYING AMOUNTS OF WATER OF DILUTION AT CONSTANT FREENESS

Temp. °C.	Rate of drainage in seconds: 7 inches of water above wire	6 inches of water above wire	5 inches of water above wire	4 inches of water above wire
5	21.0	18.5	16.0	11.0
10	21.5	18.0	15.3	12.0
15	20.6	16.9	14.5	11.4
20	18.0	15.7	12.8	10.7
25	15.2	13.7	11.3	9.2

80 lb. sheet, freeness 20%

Table 10 covers the rate of drainage in seconds when the temperature of the water is varied from 5 to 25 degrees C. with five degrees intervals and the volume of water is varied 4, 5, 6 and 7 inches above the wire in the deckle box. The pulp used for this test was beaten in a ballmill to a freeness[16] of 20 per cent. and the sheets made were of 80 pound weight on the basis 25x40, 500 sheets.

Table 11 shows the effect of varying freeness on the rate of drainage at varying amounts of water of constant temperature. The weight of the sheets made in this series was as in the above, 80 pounds on the standard ream basis.

Table 12 shows the effect of the height of water in the deckle box, i.e., the volume of water of constant temperature on the rate of discharge and on the Mullen and Tear tests. The sheets were of 80 pounds weight and the freeness in the first test 16 per cent. and in the second test 20 per cent.

Table 13 covers results of Mullen and Tear tests on sheets made with varying amounts of water of varying temperature. Also the average of these tests disregarding the temperature variations.

TABLE 11
RATE OF DRAINAGE IN SECONDS DURING SHEET FORMATION AT VARYING FREENESS OF THE STOCK AND VARYING AMOUNTS OF WATER OF DILUTION AT CONSTANT TEMP.

Freeness %	Rate of drainage in seconds: 7 inches of water above wire	5 inches of water above wire	3 inches of water above wire
34.3	12.1	9.0	5.6
30.0	12.6	9.5	5.9
26.3	13.6	10.2	6.2
22.8	15.5	11.7	7.0
21.6	16.0	11.4	7.0

80 lb. sheet, temperature 20°C.

TABLE 12
EFFECT OF QUANTITY OF WATER USED FOR SHEET FORMATION ON RATE OF DRAINAGE AND ON TEST RESULTS

	Inches of water above wire	Time required to form a sheet, average sec.	Mullen	Elmendorf
Test 1	7	18.1	96	125
	6	16.1	95	104
	5	14.0	97	115
	4	10.0	98	113
	3	7.2	98	114
	2	5.0	93	117
	Freeness of stock, 16%			
Test 2	7	16.1	104	108
	6	14.0	106	130
	5	11.0	102	119
	4	9.1	101	123
	3	6.0	99	113
	2	4.1	98	143
	1	2.0	75	133
	Freeness of stock, 20%			

TABLE 13
EFFECT OF QUANTITY OF WATER OF VARYING TEMPERATURE USED FOR SHEET FORMATION

Inches of water above wire	Temperature of water of dilution 5°C. Mullen	5°C. Elmendorf	10°C. Mullen	10°C. Elmendorf	15°C. Mullen	15°C. Elmendorf	20°C. Mullen	20°C. Elmendorf	25°C. Mullen	25°C. Elmendorf
7	106	80	102	96	102	86	102	78	101	84
6	104	89	107	89	103	81	101	85	104	81
5	106	102	106	89	107	86	103	92	104	84
4	104	86	104	101	107	91	106	92	105	85

AVERAGE OF ABOVE DISREGARDING TEMPERATURE OF WATER

Inches of water above wire	Time required for formation of sheet, sec.	Mullen	Elmendorf
7	19.3	102.6	84.8
6	16.6	103.8	85.0
5	14.0	105.2	90.6
4	10.9	105.2	91.0

TABLE 14
EFFECT OF QUANTITY OF WATER USED FOR SHEET FORMATION AT VARYING FREENESS OF THE STOCK

Inches of water above wire	Freeness of stock 34.3% Mullen	34.3% Elmendorf	30.0% Mullen	30.0% Elmendorf	26.3% Mullen	26.3% Elmendorf	22.8% Mullen	22.8% Elmendorf	21.6% Mullen	21.6% Elmendorf
7	104	93	101	92	109	84	110	80	107	82
5	104	88	105	88	108	87	103	83	105	81
3	96	93	98	90	104	89	103	84	99	79

Table 14 is a similar table with the volume of water and the freeness of stock as variables.

Table 15 covers the average results of a large number of experiments to determine the optimum drainage time. For this series of tests a specially high deckle box was built and the tests were carried out with unbeaten bleached sulphite making sheets of such weight as specified in the outline for initial strength of pulp.

TABLE 15
EFFECT OF QUANTITY OF WATER USED FOR SHEET FORMATION

Inches of water above wire.....	4	8	12	16	20	24
Time required to form a sheet in sec.	4.6	10.1	15.6	19.4	25.0	28.5
Mullen	28.5	31.9	33.1	30.6	27.3	23.9
Elmendorf	189.8	198.5	196.8	195.1	187.5	180.3

This last table and accompanying graph (Fig. 1) illustrate conclusively the effect of varying dilution in the deckle box. An attempt to explain this is that if too much water is used the fibers have an opportunity to settle rather than felt together. As

[16] The Forest Products Laboratory standard freeness tester is used and the test is carried out with 800 cc. of stock solution containing 4 grams of fibers. The test is carried out at a temperature of 20°C. The overflow expressed in cubic centimeters divided by eight is the per cent freeness.

the water is decreased the ratio between settled fibers and felted fibers becomes smaller resulting in an improvement in formation and consequently in the tests of the sheets. As the optimum condition is passed the amount of water is too small to form the sheet properly and the water leaves the web of fibers before the sheet is formed causing a lumpy and wild formation and low tests.

The only change in the specification for sheet making that might be made to advantage is the application of an agitator, something similar to a potato masher instead of the present direc-

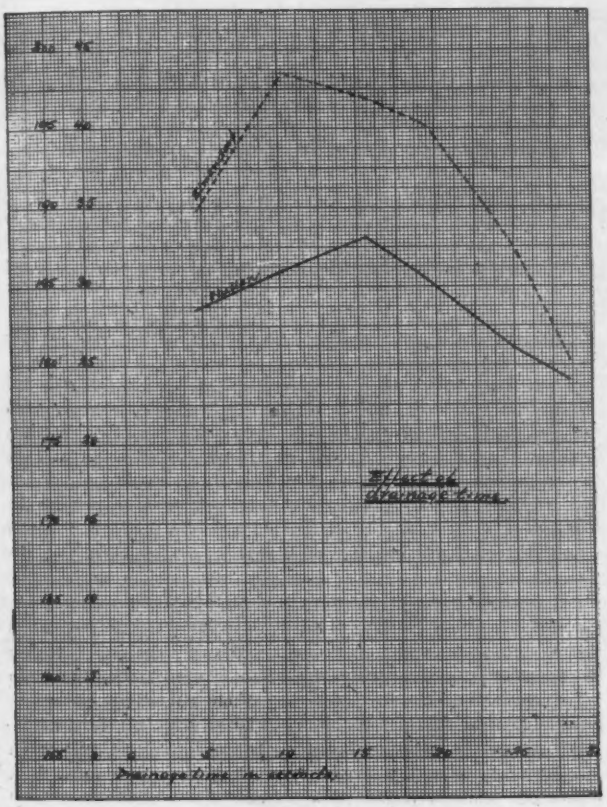

FIG. 1.

tion that the fiber suspension in the deckle box should be mixed with the hand.

Pressing

The influence of pressure on the strength tests has been conclusively established by Cameron[11] and his investigation is too well known to require any comments or duplication.

The pressure of 200 pounds per square inch was selected because it falls on the flattened part of the curve, resulting when strength is plotted against degree of pressure. A higher pressure would show slightly higher strength and would reduce the limits of error somewhat but would necessitate more expensive equipment.

Some objections have been made to the inconvenience of three separate pressings. The preliminary pressing between felts at low pressure is made to remove the excess water from the sheets so as to make them more easily handled. Laymon showed that within the limits 20 to 60 pounds per square inch the pressure during this preliminary pressing is of no consequence.

The first pressing at 200 pounds for five minutes between blotters is the principal part of the pressing which reduces the moisture content to about 30 to 40 per cent.

The purpose of the second pressing at the same pressure for two minutes between fresh blotters is to reduce the moisture still further and after this final pressing the moisture content of the sheet if reduced closely to 28-30 per cent in every case. This second pressing is of practical importance as very little excess moisture is carried into the humidity room when the sheets have been pressed the second time. Too much moisture in the sheets might disturb the humidity condition to quite an extent if a large number of sheets are dried at the same time and only a small humidity room is available. Another reason for this second pressing is that it is easier to reduce the moisture content to the same degree every time by reducing it to a minimum.

The amount of water that can be removed by pressing no doubt depends on the freeness of the fibers in the sheets and the absorbency of the blotters. The proper method would be to press the sheets to the same dryness in each case but this is not possible on account of these variables. By pressing the sheet a second time the effect of the variables is decreased and it is possible to duplicate the dryness of the pressed sheets within reasonable limits. By pressing the sheets to the same dryness and completing the drying in air of constant temperature and humidity we obtain a constant rate of drying which undoubtedly is of importance for the uniformity of the internal changes in the sheets during drying.

The number of blotters and length of pressing are not selected from optimum conditions but so as to combine practicability in operation with highest possible degree of reproducibility.

The tables illustrate the effect of the variables of pressing.

Table 16 shows the effect of pressing between different number of blotters. Eight, four and two blotters were used on each side of the sheets for the first pressing and four, two and one respectively for the second. The first pressing was carried out for 5 minutes and the second for 2 minutes according to the specifications.

TABLE 16
NUMBER OF BLOTTERS

	8 Blotters 4 Blotters	4 Blotters 2 Blotters	2 Blotters 1 Blotter
Mullen	107.5	108.5	107.8
Elmendorf	142.8	148.5	149.8

TABLE 17

Table 17 shows the effect of dry and cold blotters according to Laymon.

COLD AND HOT BLOTTERS

	Hot blotters	Cold blotters
Mullen	30.7	31.5
Elmendorf	218.9	234.0

TABLE 18

Table 18 illustrates the difference in the results by pressing the sheets between old and new blotters. The number of blotters and duration of pressure were constant, the only variable was the age of the blotters.

AGE OF BLOTTERS

	New blotters	Old blotters
Mullen	98.0	98.0
Elmendorf	147.8	155.6

TABLE 19

Table 19 shows the difference in results when pressing the sheets only once for five minutes and when pressing them twice according to specification. The number of pressings is the only variable in this series.

SINGLE AND DOUBLE PRESSING

	Double pressing	Single pressing
Mullen	113.0	110.5
Elmendorf	159.5	172.5

TABLE 20

Table 20 illustrates the effect of the duration of pressure at maximum. One series of tests was made pressing the sheets the specified length of time and another pressing them double that length of time.

DURATION OF PRESSURE

	First pressing 5 minutes Second pressing 2 minutes	First pressing 10 minutes Second pressing 4 minutes
Mullen	105	104.5
Elmendorf	143	135.5

All these results indicate that the variables referred to have the largest influence on the Elmendorf test and effect the Mullen but slightly. Outside of the effect of temperature of blotters and of single and double pressing, the results caused by the other vari-

[11] Pulp & Paper Magazine, No. 3, 1924.

ables fall within the limits of reproducibility of the method itself as illustrated in Table 1. It is noticeable, however, that the variables causing a larger removal of moisture such as by a large number of blotters, hot blotters and long duration at pressure result in a proportionately lower Elmendorf test.

It is very fortunate that the number of blotters and their age do not affect the final results to any larger extent because it simplifies the method considerably and makes possible a certain economy in blotters for routine work. Nevertheless it is not advisable to reduce the number of blotters or to use the blotters too long even in routine work because any steps that possibly can lead to higher accuracy and reproducibility should be followed up.

Drying

The specification in the proposed standard for drying calls for drying the pressed sheets at 65 per cent humidity and 70 degrees F. temperature. This is simply accomplished by fastening the sheets in vertical position from one corner to a string or wire by means of clothes pins or paper clamps.

Some suggestions have been made that the length of time for seasoning in the humidity room should be specified. The end point for the drying is constant weight and it is impossible to specify a definite length of time that will apply to all classes of pulp. Groundwood and soda pulp sheets will retain a little more moisture after pressing than a free long fibered pulp like sulphate, for example, and will also part with the water at a slower rate during drying. By letting the sheets dry in the humidity room over night ample time is allowed for drying.

The effect of the length of time allowed for seasoning in the humidity room was experimentally studied by the following tests. A large number of sheets were made according to the specifications and all were dried in a hot air rack for 20 minutes before being placed in the humidity room. The sheets were then tested after 1, 2, 3 and 4 hours' seasoning at the standard humidity and temperature conditions. These experiments were not carried out until the results became constant but illustrate the necessity of allowing ample time for the sheets to dry and season properly before they are tested.

TABLE 21
LENGTH OF SEASONING IN HUMIDITY ROOM

	One hour	Two hours	Three hours	Four hours
Mullen	103.5	102.0	100.0	101.0
Elmendorf	123.5	126.0	132.0	135.0

As has already been pointed out the principal advantage of the specified method of pressing and drying is that we obtain a uniform rate of drying which is presumed to be of benefit for the internal structure of the sheet.

In order to illustrate the difference in drying the sheets at varying temperatures compared to drying at standard humidity and temperature conditions, a series of experiments were carried out, the average results of which are illustrated in Table 22. The only variable from the method was the temperature of drying. Sheets were dried at 212 degrees F. for 1 hour, at 167 degrees F. for 1 hour and air dried at 53 per cent rh. and 70 degrees F. for five hours. All these sheets were then seasoned in the humidity room over night. Results of these tests compared to drying in the humidity room were as follows:—

TABLE 22
RATE OF DRYING

	Dried at 212° F. one hour	Dried at 167° F. one hour	Air dried 53% r.h. 70° F. 5 hours	Dried in humidity room
Mullen	85	83	90	89
Elmendorf	128	128	132	138

We notice decidedly lower strength tests for the sheets dried at the higher temperatures than for the sheets dried in the air and in the humidity room.

That it is the rate of drying rather than temperatures and duration of the drying period at high temperatures that causes these lower results is illustrated with the following experiments. (Table 23.) Sheets were made, some of which were dried at 167 degrees F. for 15 min. others for 30 min., and still others for 60 min. All sheets were then seasoned in the humidity room over night.

TABLE 23
RATE OF DRYING

	Dried at 167° F. 15 min.	Dried at 167° F. 30 min.	Dried at 167° F. 60 min.	Dried in humidity room
Mullen	108	108	107	113
Elmendorf	152	159	158	164

The tests of the sheets dried at 167 degrees F. varying lengths of time are good checks and the sheets dried in the humidity room test decidedly higher.

The proposed method is not intended for routine work and no claim is made for rapidity of manipulation. It is possible however to modify the drying slightly so that the method could be applied to routine work. This has successfully been done and two hours have been found sufficient from the time the sample is obtained until the results are secured. This modification is carried out as follows:— The sheets after pressing are dried in a hot air rack for 15 minutes at about 160 degrees F. temperature and is then allowed to season in the humidity room for exactly one hour. By taking the sample in the pits or immediately after bleaching, as the case might be, and testing it by the proposed method with the modified drying operation, it was possible to obtain a value of the initial strength in a reasonable length of time to serve as a guide for the next operation in the manufacture of paper.

This part of the outline has been discussed previously in connection with the comments made by M. A. Krimmel and nothing further needs to be said in this matter. Any recognized and adopted tests can be applied to the sheets if they comply with the specifications prepared by the Committee on Paper Testing. It is recommended however that the sheets be tested for at least two properties such as bursting and tearing strength.

B. W. Scribner in his comments expresses doubt regarding the validity of expressing the strength results in point per pound weight basis except the bursting strength, and suggests that the directions in the official paper testing methods should be followed. To the writer however it seems to be quite feasible to express all tests according to the present outline as the basis weight is always the same within 3 pounds variation. In paper testing where many different basis weights are dealt with, the ratio of weight to test result is not comparable but when the weight is adhered to within narrow limits as in the case of this method, there can be no serious objections to expressing all results on the point per pound basis, or as prescribed in the method in points per hundred pounds base weight.

The Committees instrumental in outlining the proposed method are continuing the work on the basis of what already has been accomplished, and intend to prepare a more detailed method to be presented at the 1928 meetings.

The detailed method will include specifications and directions for the sampling of the pulp somewhat in line with the suggestion under the heading "SAMPLING". A method for disintegration will be worked out and formulated by the Canadian Forest Products Laboratory. Specifications for the construction of a sheet machine and a hydraulic press will also be included. No data is available concerning the merits of the instruments now in common use so that the selection may be governed by the outcome of a survey planned by the Committees to find the types of instruments used by the majority of the laboratories. The Sulphite Committee in the course of next month will issue a questionnaire covering these points and an urgent appeal is made for cooperation in this work by a full response. Only by a full cooperation will it be possible to select the proper instruments which will occupy a necessary part of the detailed method.

No particular tests will be specified but the methods adopted by the Association for determining the bursting, tearing tensile and folding strength of paper will be appended.

If results of investigations now in progress warrant the change to a lower base weight than that now stipulated this will be done in the final method.

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Scientific Classification of Accounts Essential*

Full Knowledge of Present and Future Needs of Particular Enterprise Needed to Construct System

By Edgar B. Kapp

After telling his readers that "classification is the art of putting together things that belong together," Mr. Kapp goes on to describe in this article how an accountant may determine what things belong together and what ones should be kept apart, in constructing an accounting system.

To devise a system, Mr. Kapp points out, the accountant should make a full index of the needs of a particular enterprise, for the future as well as the present, and then should classify the accounts scientifically. His discussion of whether the cost system should be a primary or a subsidiary class is of special interest.

Accounts may be classified by balance, by content, and by disposition, according to Mr. Kapp, who proceeds to demonstrate how an outline of accounts may be made up. Accounts must be related to one another in a definite and definable way, he says.—The Editor.

Accounting Is Classification

Classification is the art—or science—of putting together things which belong together and keeping apart things which belong apart; the basis of putting-together, or grouping, is always a fundamental similarity or family relation among the items.

Accounting is a mere matter of classification of business transactions—very simple or very amplified classification as conditions require. Provision is made for grouping like transactions and for relating and collating classification totals. Some accounting classifications are like Topsy in Uncle Tom's Cabin—they just grow; others are complete structures, the result of careful planning.

Should Have in Mind History of System

Every accountant should have in mind a history of the system of accounts with which he works. Many will undoubtedly find that the system had its birth when the original bookkeeper wrote on the top of the first ledger sheet 'Cash or 'Land and Buildings.' When goods were sold on credit, the bookkeeper probably took a new ledger sheet and wrote on the top of it "Accounts Receivable," and, in order to follow the double-entry idea, opened another account, "Sales." When the business first borrowed at the bank there arose the original requirement for an account "Bills Payable," to counterbalance the debit entry to "Cash." Through this or similar processes a scheme of accounts gradually came into being—a system which covered after a fashion the most urgent needs of the business. Perhaps when a new ledger book supplanted the old the order of accounts was changed to a more logical sequence. In this manner there was constructed, largely by haphazard processes, an accounting system which paralleled closely the natural development of the business. Such a growth is likely to be lopsided and grotesque, a patchwork quilt pieced out to fit emergencies as they arose.

The other method of building a structure of accounts is for the accountant to take a full index of the needs of the business, not only the needs of the moment but also those of the future. After a complete analysis, first, of the company's products (assuming that the organization is a company), second, of the company's method of producing and selling those products, and, third, of the type of information which the officers of the company desire from him, the accountant can become the architect of a structure of accounts. The resulting classification should be ample to collect facts in all the detail necessary, but limited enough to afford all the advantages of simplicity. The accountant should plan the lines of future expansion of the accounting system so that it may grow logically with the business.

If the accounts have developed merely by accident or undirected evolution the accountant should take the upper hand and investigate matters. He should see whether he has the ideal arrangement of accounts, or whether he is not trying to make an accounting system originally designed to fit a business doing $100,000 a year actually fit an enterprise of $1,000,000 a year handling new and different lines of business.

How Accounts May Be Classified by Balance

Perhaps the simplest primary basis of classification of accounts is to draw a vertical line down the middle of a balance sheet. On the left will be found the debit, or asset, accounts and on the right the credit, or liability and capital, accounts. This is an obvious grouping, and it would seem that sub-divisions could be conveniently arranged within these two major classes of debit-balance and credit-balance accounts.

There are several difficulties, however, in such a classification. Some accounts are not typically debit or typically credit. If the business has a general interest account, one month it may have a debit balance representing interest prepaid, and the next month a credit balance representing a liability for accrued interest. A second objection is that, to be intelligible, such a basis of classification is unsound, if it fails to recognize the possibility that in a

* From The American Accountant.

given year a heavy loss may convert the surplus to a deficit. The basis of classification of accounts should be not the normal or typical balance of the accounts but some other relationship.

How Accounts Are Classified—By Content or Disposition

A better foundation for the structure of accounts is the distinction between accounts of different natures—between the real, or balance-sheet, accounts and the nominal, or income-statement, accounts. When an account is called real or nominal its content is being described. A real account represents an asset or a liability—something that is actual, continuing, real, like Cash or Notes Payable; a nominal account is one which exists chiefly in name, covering a series of transactions and generally wiped out by the construction of an income statement, only to be set up anew with the beginning of the next accounting period. Sales or Interest Expense are nominal accounts.

When an account is called a balance-sheet account or an income-statement account, what is meant is not so much its content as its disposition at the close of the accounting period. But it so happens that all accounts which by content get the name "real" are, in fact, "balance-sheet" accounts, and, similarly, accounts which lead to the "income statement" are nominal."

There is a third class of accounts—mixed accounts—which contains items both real and nominal in nature. For purposes of classification, however, the advantages of simplicity argue for including mixed accounts under one of the two major classifications mentioned above.

The first basis of an accounting classification, then, should be the nature, content, or disposition of accounts rather than their typical balances.

The Cost System—A Primary or a Subsidiary Class?

For a company whose chief business is trading rather than manufacturing, the scheme of accounts may well start with the simple division of accounts into real and nominal accounts. For an industrial concern, however, a provision must be made for the cost system.

Two methods of classifying the cost accounts are possible. First, a separate major group for the cost accounts may be set up so as to make the first and primary division of the accounts:

1—Real, or balance-sheet, accounts
2—Nominal, or income-statement accounts
3—Cost accounts

Or, second, it may be advisable to handle the cost system as a subdivision of a real account, the latter a control account. In such a case the organization would be:

1—Real, or balance-sheet accounts
  A—Work in process (or other title, controlling cost ledgers)
  B—Other real accounts
2—Nominal, or income-statement, accounts.

The choice between these two methods of providing for the cost system depends chiefly upon two considerations: first, whether the cost system is more important or less important than the regular accounting system; second, whether the cost system is "tied-in"to the regular accounting system through control accounts.

In some large companies there are two separate accounting departments—cost and general (often sales) accounting. The cost-accounting department may be the larger in point of personnel and equipment. The more important the cost accounting department as compared with the regular accounting department, the more advisable is it to have a separate primary classification for the cost accounts. The smaller and less important the cost system as compared with the regular accounting system, the more desirable it is to have merely two primary classifications—real and nominal accounts—and to place the cost system under a control account which is included with the real accounts of the system.

Very often the cost-accounting system is run on a statistical basis only; that is to say, it is not tied in to the regular accounting system through control accounts on the general ledgers. When the cost-accounting system is not tied in to the general accounting system, it is impossible to control it through a general ledger account; under such conditions it is necessary to set up a main classification (see the first classification suggested above).

Whenever the cost-accounting system is both small as compared with the general accounting system and is tied in to that general accounting system, the cost system should be made a sub-division of one of the real accounts. Whenever the cost system is of great importance and is not tied in to the general ledgers, the cost accounts should be given a separate major heading. Other combinations must be handled in accordance with the accountant's best judgment.

With the fundamental principles of classification established, it is now merely necessary to draw up an outline of accounts. This outline may be the result of two different kinds of processes: first, of building up, that is, of starting with all the accounts now in use and classifying them; and, second, of breaking down, that is, of taking the larger account classifications and breaking them down into the fewest sub-divisions that will give sufficient detail.

The accountant who is starting to build a scheme of accounts for a new business or who is completely reorganizing his existing scheme of accounts would do well to follow the system of taking the larger account classifications and breaking them down. The accountant who is merely intent upon organizing in an orderly fashion, with a few minor changes, the same accounts which he already maintains, may very well list these accounts and then shuffle them around until they find their proper classes.

At all events, the outline of accounts should start with the first asset item on the balance sheet. If it is the custom of the company to put Cash first on the balance sheet, this should be the first item in the outline. It might very well appear something as follows:

1—Real Accounts
  A—Cash
    1—Cash in Banks—General
    2—Cash in Banks—Branch Office Deposits
    3—Petty Cash
    4—Etc., etc.

If Accounts Receivable come next on the balance sheet the outline should continue:

  B—Accounts Receivable
    1—Customers' Accounts Receivable—Domestic
      a—Accounts Receivable Doubtful—Domestic
      b—Reserve for Bad Debts—Domestic
      c—Reserve for Cash Discounts—Domestic
    2—Customers' Accounts Receivable—Export
      a—Accounts Receivable Doubtful—Export
      b—Reserve for Bad Debts—Export
      c—Reserve for Cash Discounts—Export
    3—Etc., etc.
  C—Etc., etc.

The outline should continue along the same lines, covering the remaining real accounts, then the nominal accounts, and finally the cost accounts (assuming they are handled as a separate major classification).

The completed outline of accounts may be anything from a few typewritten pages to a very complex compilation covering hundreds of pages, or it may even be in the form of a book. Before building such an outline of accounts it would be well for the accountant to see what a completed outline looks like. A book recently published contains such a detailed outline of accounts and may be helpful to one about to construct for himself a classification of accounts. This volume is "A Manual of Accounts for the Rubber Industry," as prepared by the accounting committee of the Rubber Association of America, Inc. The Ronald Press, New York, are the publishers.

Method of Handling the Deduction Accounts

It was explained above that the basis for the classification of

accounts should be the content or nature of the accounts rather than the normal balance. This means that typical deduction accounts, should be classified as sub-divisions of the account from which the balance of the "deduction account" is to be taken. Thus, in the brief outline shown above, Reserve for Bad Debts was included as a sub-division of Accounts Receivable rather than under a separate classification. Of course, when one gets to a reserve which represents a segregation of profit or surplus rather than a reduction in an asset, that reserve cannot be deducted from an asset account but must stand by itself. If the above outline were continued, Reserve for Contingencies would be in a class parallel to Accounts Receivable, whereas Reserve for Bad Debts is merely a sub-division of Accounts Receivable.

Nomenclature

Whenever the subject of classification of accounts arises it always carries with it the question of naming or re-naming accounts.

Within the past ten years it has become somewhat common for accountants to invent fanciful and often grotesque names for various accounts. The capable accountant, however, just like the great author, reveals his power in his simplicity. An account name should be at the same time simple and descriptive. It should not be necessary to consult the manual of accounts or to visit the original-entry clerk to determine what is included under a given account name. When an accountant cannot adequately describe the contents of an account in a few simple terms there is need for classification or for re-classification of the account, because a complex term in itself denotes that an account contains dissimilar items which had better be divided and placed in separate accounts.

Advantages of Classifying Accounts

The difference between a bookkeeper and an accountant often lies in just this: When the former deals with an account he sees only that particular account, while the latter realizes the relation of the particular account to all the other accounts.

Classification of accounts gives to the accountant a valuable perspective; it enables him to stand at a distance and see the forest rather than to be lost in the forest and see only the trees. Without some device such as classification the ledgers contain only a mass of accounts related to one another merely in some indefinite and indefinable manner.

Furthermore, the human mind cannot carry and deal intelligently with too many units at a time. The accountant who must think in terms of all the accounts is bound to be befuddled. On the other hand, with a logically developed outline of accounts the accountant can do his thinking in terms of groups or classes of accounts. In this manner he is enabled to do more constructive thinking and can improve measurably both himself and his work.

While any disorganized accounting system can benefit through proper classification of accounts, it is the accounting system of a large manufacturing company which needs most careful classification. The larger the business of the company, the more important is accounting control; but unless the given method of control can be applied in the light of the entire system of accounts, it is likely to prove valueless. With the maze of accounts inevitable in a larger company, a proper outline of accounts is merely a chart by which the accountant and his subordinates may guide themselves.

Reclassification

When an outline of accounts is being constructed there must be kept in mind the fact that a system of accounts is not static but dynamic. It should change as the changing needs of business make alterations desirable.

The outline should, accordingly, be built with an eye to the future. If this is done, the accountant will not be at a loss when one day he discovers that a single account as handled at the time should be split up. He will have prepared for this and will know in short order the correct procedure.

No system or outline of accounts should be expected to last more than a few years. Even though the need is not apparent, the accountant should at intervals of a few years go over the scheme of accounts and view it with a critical eye. Have conditions in the business changed since this system was first established? Have new methods of accounting been discovered since the last outline was made? Questions of this nature should occur to the accountant, and if they show any point where the outline of accounts may be improved, the necessary alterations should be made.

Symbolization

When the outline of accounts has been prepared, it would seem that the only thing to do next would be to place the account names in order on separate pages of the ledger. There is, however, an intermediate step which will not only aid the mechanics of the accounting department but will perhaps increase the efficiency of the whole organization. A good outline of accounts deserves an index equally good.

Symbolization—Labor Saving Method of Account Designation

How long does it take one to write the name of the account "Reserve for Loss on Stocks of Subsidiary Companies"? Assuming that it is just as accurate, is it more efficient to write merely an account symbol such as 37.01? If arrangements can be made for 37.01 to mean exactly the same thing as the name of the account, then 37.01 can be considered a symbol of the account. A symbol is a characteristic abbreviation which represents an item in a classification. Just as a pothook may be a shorthand symbol for a word, so a combination of letters or of figures, or of letters and figures, may be a symbol for an account.

By the mere description of an account symbol one of the advantages of symbolization is evident. It means a saving in time; symbols are for the accountant a shorthand designed especially for his use.

Need for a Common Language

In the accounting department of a large factory many clerks have occasion to refer repeatedly to the same account. Suppose a time clerk is making out two hundred time slips a day. Is it easier for him to write in the space marked "Charge Account"—Direct Labor—Turret Lathe Department (the proper account name) or a symbol like LD-LT, or like 47.31 (account symbols)? But in order for the time clerk to use this short cut, there must be an established code, recognized by the whole factory, which makes LD-LT or 47.31 stand for Direct Labor—Turret Lathe Department. The first requisite, then, is that a symbol be used in the same way by everyone; it must have a standard meaning.

Need for an Explicit Language

A time clerk writing out the name of the account mentioned above may make a slight omission and write merely "Labor—Turret Lathe Department" rather than "Direct Labor." It is a small omission, yet likely to cause a great loss of time in the accounting department while the slip is being traced to its source. With a system of symbols, however, the clerk would be in the habit of writing four letters (or figures) in the proper space to denote the account. There is little likelihood that he would absent mindedly omit an entire letter when there were only four to be written. Yet LD-LT has a very definite and explicit meaning; once the symbol is written, there can be no question in the future as to which account is meant.

Or take another set of conditions. An accounting clerk in the rush of making out vouchers merely debits Reserve for Discounts, a title which, if there are several different kinds of discounts, may be very indefinite. If symbols were used, the clerk either would know the correct symbol, or, not knowing it, would be forced to consult the manual of accounts in order to be able to write anything on the voucher.

No Mechanical Difficulty in Using Symbols

The highly practical accountant who has never made use of symbols previously is sure to put in the objection that his staff will not be able to memorize the symbols. Or he may insist on having the full name of every account on every accounting record—just because he always has had it.

If a code of symbols is properly built up there should be little

difficulty in having the staff of the accounting department memorize the symbols for the more commonly used accounts. And in the case of those accounts to which reference is made only at infrequent intervals the clerks will be forced to resort to the manual of accounts, in itself a desirable thing, for then there will be no guessing as to proper account names or symbols.

The accountant who insists that the full account name be used at all times is merely following a blind and old-fashioned instinct. The factory time clerk understands little about accounting. LD-LT means every bit as much to him as Direct Labor—Turret Lathe Department.

Almost every accounting system has some sort of coding or symbolization, whether it has been thought of as that or not. When a bookkeeper comes to an account which he has little occasion to use he is often at a loss where to find it in the ledger. He looks up the name in the index and finds that it is on page 305. To a certain extent 305—or if there are subsidiary ledgers GL-305—is a symbol. For all practical purposes, if it were understood that Dr. GL-305 meant debit, the particular account, nothing would be lost and time would be saved.

The difficulty with GL-305 is that it has no connection with the account itself. For the accounting staff to use that symbol would require them to memorize something which had no relationship to the thing with which it was to be associated. GL-305 is the type of symbol, if such it may be called, which is found in those accounting systems which have "just grown" without any conscious direction; it is entirely the result of accident. On the other hand, when there has been a planned classification of accounts there may be a planned code of symbols.

Use of Decimal and Mnemonic Symbols

Planned codes of symbols are of two kinds, decimal and mnemonic. A decimal symbol is one made up entirely of figures, generally arabic numerals. Usually a decimal point is included in the symbol in order to break it up.

Mnemonic symbols are made up of letters of the alphabet or of combinations of letters and figures. The word mnemoic means "aiding the memory." For example, it is probably true that LD-LT (meaning Labor, Direct—Lathes, Turret) may be easily connected with the account Direct Labor—Turret Lathe Department.

LD-LT is a mnemonic symbol; 67.41 may be a decimal symbol for the same account.

Application of Decimal and Mnemonic Symbols

Symbols should be applied to account names only after there has been prepared an outline of the accounts—a classification of the accounts into a logical scheme or system. For purposes of illustration let us take some account names with their decimal symbols from a recently published manual of accounts, and apply to these accounts possible mnemonic symbols. This outline of accounts with their symbols is shown in Table 1. Many subdivisions of the accounts are omited; the general scheme , however, should be clear after a study of this table.

Some of these classifications seem at first glance rather complex; and the corresponding symbols may appear formidable. Let us analyze the second last item to see if this complexity is not more apparent than real. An account name like Depreciation of Furniture in Sales Office is fairly definite and clear. And SAF-FD should be equally clear; translated it means Sales, Administrative, Office—Furniture Depreciation. The letters in the mnemonic symbol are, as far as possible, the initial letters of the words in the title.

As a matter of fact, the symbols SAF-FD and 86.644 are much more explicit than the account name, Depreciation of Furniture in Sales Office, for each of the symbols shows that this account is closed into the account for Office Furniture at the end of the period, and that this latter account is in turn closed into Office and Miscellaneous Expense, which in turn is closed into Administrative Expense.

TABLE 1*

Mnemonic Symbol	Decimal Symbol	Outline of Accounts
A to K	1 to 8	Real Accounts
C, E, D	1	Cash, U. S. Govt. Securities and Debts Rec.
F, H, G	2	Merchandise, Materials, and Goods in Process, Etc., etc.
K to Z	8 to 10	Nominal Accounts
S	8	Income and Expense on Sales
SS	81.	Sales
SD	82.	Deductions from Sales
SDR	82.1	Returned Goods
		Etc., etc.
SC	83.	Cost of Sales
SE	85.	Selling Expense
SA	86.	Administrative Expense
SAS	86.1	Administrative Salaries
SAT	86.2	Traveling Expense
SAR	86.3	Rental Expense
SAA	86.4	Auto Expense
SAF	86.6	Office and Miscellaneous Expense
SAF-T	86.61	Telephone and Telegraph
SAF-H	86.63	House Organ Expense
SAF-FI	86.64	Furniture, Fixtures and Equip. Expense
SAF-FM	86.641	Maintenance and Repairs
SAF-FT	86.642	Taxes
SAF-FN	86.643	Insurance
SAF-FD	86.644	Depreciation
SAV	86.9	Miscellaneous Expense

Principles of Symbolization

The symbols given in Table 1 are not the only ones which could have been assigned to the accounts there shown. The table should serve merely as an illustration of one method of applying decimal and mnemonic symbols to accounts.

There is no single and correct way either of classifying or of symbolizing accounts. One can only follow very general principles. For example, in assigning mnemonic symbols, experience has shown that the letters I, O, and Q should be omitted, since they may be confused with the figures 1 and 0 (zero). The letter V, standing for *various*, is usually used in a mnemonic symbol for a miscellaneous classification (see symbol SAV in Table 1). When, in mnemonic classification, the initial letter of the main word in the title cannot be used (because it is I, O or Q, or because it has already been used in the given position), the letter substituted should aim to represent the dominant sound of or syllable in the title; for example, in Table 1 Office and Miscellaneous Supplies are designated by F in the symbol, since O could not be used.

The left-hand character of every symbol represents the largest classification; the characters to the right represent successive refinements. The construction of any symbol proceeds from the general to the particular. The symbol for Direct Labor—Turret Lathe Department, LD-LT, was built in accordance with this rule. Labor and Lathe are the general classes; Direct Labor and Turret Lathes are the subdivisions.

Comparison of Mnemonic and Decimal Symbols

Mnemonic symbols, as the name mnemonic implies, are easy to memorize or to recognize. Once the accountant and his staff have grasped the general idea of the classification of the accounts with their respective symbols it is fairly easy to connect the symbol with the account. Decimal symbols lack this ease of association with the account name. On the other hand, the mnemonic symbol is perhaps more of a shock to the uninitiated accountant than is the decimal; the latter, after all, bears some resemblance to a page index in a ledger. As a matter of fact, with a decimal code the ledger index may be dispensed with, for the accounts can be indexed by their decimal symbols. One can always be sure of finding account 86.642 just after 86.41 and quite a way after 86.3 With a mnemonic code, however, it is necessary to maintain a separate page index to the ledger, for the alphabetic symbols are not assigned in the order of the A B C's. In Table 1, for example, mnemonic symbol SAF-FN follows, rather than precedes, SAF-FT.

[1] "A Manual of Accounts for the Rubber Industry," by the Accounting Committee of the Rubber Association of America, Inc. Published by The Ronald Press Co., New York.

* For purposes of illustration some decimal symbols have been changed slightly from the original text in the "Manual of Accounts for the Rubber Industry," as published by The Ronald Press, New York. (See note above.)

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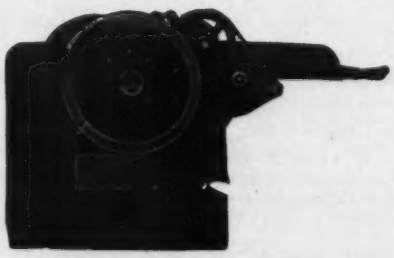

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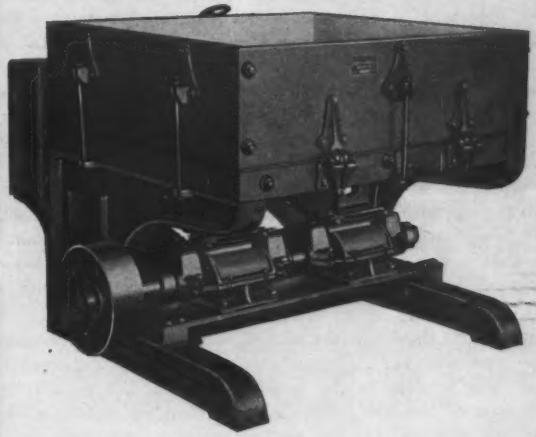

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Another basis of comparing decimal and mnemonic symbols is the ease of construction of the symbol. On this basis the mnemonic code has the distinct advantage; with a decimal code there are but nine characters in any given position (first, second, etc., character in the symbol), while with a mnemonic code there are twenty-three characters (twenty-six letters in the alphabet with I, O and Q omitted). This weakness in the decimal system may be illustrated by reference to the symbols assigned in the "Manual for the Rubber Industry," from which Table 1 was in part prepared. In the first position of the symbol figures 1 to 8 were assigned to real accounts and 8 to 10 to nominal accounts. Even with this disproportionate division it was necessary to combine in primary classification two accounts, as dissimilar as Cash and Accounts Receivable. With a limit of four characters to a symbol there can be no more than 9999 classes in a decimal code, while under a mnemonic code there may be many times this number. In a large business a very fine breakdown of accounts is desirable. With mnemonic code it is possible to have much greater flexibility in the construction of symbols than with a decimal code.

In one respect, however, the decimal method has an advantage over the mnemonic code. If any part of the accounting work is done, or may be done in the future, by mechanical methods or devices, such as tabulating machine or accounting machines, the decimal classification may be used, whereas a mnemonic code cannot be adapted without first translating it into a decimal code. In a large business economies are often effected by doing a portion of the accounting work on such machine. Where this is true a decimal code is the only possible answer to the problem of symbolization.

Collateral Advantages of Symbolization

Perhaps the greatest value of a code of symbols for the accounts lies in the opportunity which such a code gives to the accountant to be of real service in other departments of the business. Any company which both manufactures and sells employs anywhere from one to ten different codes. There is, in the first place, a produce code: a customer places an order for a certain quantity of commodity No. 33-046. The salesman includes this code on his order and in addition gives the code of his branch office, say W-849. When the order arrives at the factory it is probably sent to the finished-goods storeroom, where a clerk translates the product ordered into a storeroom code, say 2-314. The copy of the order goes to the statistical department, and undoubtedly another code is assigned. The billing department may affix still further symbols.

All in all, there are many different codes applied to the same article or transaction. These codes were probably built up by the separate department heads without reference to any other code used by the company. There is, however, an enormous waste of time in the duplication of effort involved in assigning to the same order a number of different symbols all for the same purpose. This waste may be eliminated only by a coordination between the codes of the different departments.

If there is to be a uniform code, it must be based on the accounting system. The accountant of vision will always classify his accounts and build his codes so that his symbols may be applicable not only to the accounting system but to the whole business.

A short example may clarify this point. Suppose that a company makes machine tools of all kinds, including automatic turret lathes. The general account Sales will probably be a summary of various smaller accounts covering the sales of specific products. Suppose that symbol 81 stands for Sales, as it did in Table 1; then 81.376 may represent Sales-Automatic Turret Lathes. The catalogue number for an automatic turret lathe might have as its base 81.376 with perhaps an indication of the size added. The same code should be used by the statistical department in compiling sales statistics on automatic turret lathes. And, finally, the code symbol 81.376 should be placed upon the bill sent to the customer.

The accounting code should be the basis for all other codes; these in turn should all be related to the accounting code so as to avoid duplication of effort. By adopting a proper code the accountant is not only facilitating his own work; he is also making himself more valuable to the business as a whole. Not only is he reducing the amount of crercial work in his own department but he is giving other department heads a method of simplifying their work and is creating a bond of closer cooperation.

Simplicity and Completeness

Before closing a discussion of classification and symbolization of accounts a word of warning is necessary. The desirability of organizing the accounting system has been set forth above, but the advantages will accrue only if the accountant tempers his application of the principles of classification and symbolization with common sense.

The fundamental purpose of classification and of symbolization must be to simplify rather than to becloud. It is easier to think of an accounting system in terms of logically arranged sections than as a jumbled mass of accounts. It is easier to write a simple symbol than a long account name. These are the motives which should compel the accountant to classify his accounts and assign to them symbols.

And with these motives kept constantly in mind, the accountant will be modernizing his conception of accounting and increasing his value to his firm.

Oswego Board Corp. To Build Mill

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., September 5, 1927.—The Oswego Board Corporation, recently organized to operate a mill in Oswego, expects to begin production of insulating board by next spring. Construction work is now being rushed on the new mill at Oswego, more than 150 construction workers being employed on the work. This is the newest unit of the Carlisle group of mills.

At a meeting of the stockholders held early this week in New York Floyd L. Carlisle was elected president of the corporation. Other officers elected are H. Edmund Machold, first vice president; Charles E. Norris, second vice president; R. B. Malby, third vice president; E. E. Whitney, fourth vice president; R. K. Ferguson, secretary; F. A. Rogers, treasurer; F. Hayes Le Faivre, assistant treasurer.

The board of directors is composed of Lloyd L. Carlisle, H. Edmund Machold, R. B. Malby, Charles E. Norris, E. E. Whitney, R. K. Ferguson and D. M. Sutherland.

Officials of the company hope to have the new mill enclosed before winter so that construction work can be carried on during the winter months. In preparation for beginning production more than a dozen carloads of two-foot spruce and hemlock wood were shipped to Oswego this week from the Deferiet plant of the St. Regis Paper Company.

Wisconsin's Vocational Schools

APPLETON, Wis., September 3, 1927.—Wisconsin's statewide plan for evening classes in paper and pulp manufacture will be put into effect this fall, with H. G. Noyes, of Appleton, Wis., in charge as supervisor. Vocational schools in all centers where paper mills are located will carry on classes similar to those held with such good success in the Fox River Valley last season. All paper mill workers who desire to learn more about their work, and about the industry in general, will be invited to enroll. The foreman's classes, so popular the last several years, will be resumed. The school officials have worked in close co-operation with the mills to learn the type of instruction needed, and have interviewed many of the workmen concerning their wishes.

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John Lang Paper Co., Philadelphia, Pa..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Williamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
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WEEK ENDING SEPTEMBER 10, 1927

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Cigarette paper .....2,561 cs.
Wall paper .....16 pkgs., 26 bls., 38 cs.
Paper hangings .....22 bls., 1 cs.
News print .....1,036 rolls
Printing paper .....95 rolls, 31 bls., 106 cs.
Wrapping paper .....55 bls.
Packing paper .....61 bls., 92 cs.
Kraft paper .....53 bls.
Sulphate paper .....186 rolls
Stencil paper .....51 cs.
Surface coated paper .....28 cs.
Baryta coated paper .....26 cs.
Gold coated paper .....5 cs.
Tracing paper .....18 cs.
Silk paper .....15 cs.
Photo paper .....4 cs.
Decalcomania paper .....56 cs.
Colored paper .....103 cs.
Envelopes .....2 cs.
Writing paper .....53 cs.
Filter paper .....42 bls., 6 cs.
Straw pulp .....5 bls.
Miscellaneous paper .....216 rolls, 11 bls., 264 cs.

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Phoenix Shipping Co., Hamburg Hamburg, 84 cs.
The Surbrug Co., Waukegan, Havre, 10 cs.
Standard Products Corp., Waukegan, Havre, 15 cs.
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Stern Co., Ile de France, Havre, 2 cs.
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A. C. Dodman, Jr., Inc., Aquitania, Southampton, 1 bbl.
Franklin Abbott, Aquitania, Southampton, 1 pkge.
F. Blank, Reliance, Hamburg, 17 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnetonka, London, 1 cs., 18 bls.
A. C. Dodman, Jr., Inc., Celtic, Liverpool, 4 bls.

NEWS PRINT

Walker Goulard Plehn Co., Bergensfjord, Oslo, 10 rolls.
A. S. Zabriskie, Stuttgart, Bremen, 159 rolls.
Journal of Commerce, Stuttgart, Bremen, 207 rolls.
Parsons & Whittemore, Inc., Stuttgart, Bremen, 660 rolls.

PRINTING PAPER

P. C. Zuhlke, Pennland, Antwerp, 52 cs.
J. Henschel, Hamburg, Hamburg, 2 cs.
Sinclair Valentine Co., Hamburg, Hamburg, 3 cs.
E. Dietzgen & Co., Hamburg, Hamburg, 21 cs.
Keuffel & Esser Co., Hamburg, Hamburg, 95 rolls.
J. H. Scott Paper Co., Hamburg, Hamburg, 31 bls.
Heemsoth Basse & Co., Reliance, Hamburg, 26 cs.

WRAPPING PAPER

Blauvelt Wiley Paper Manfg. Co., Caledonia, Glasgow, 46 bls.
Japan Paper Co., Gripsholm, Gothenburg, 9 bls.

PACKING PAPER

M. Harrison & Co., Hamburg, Hamburg, 61 bls.
Haule Wax Paper Manfg. Co., Hamburg, Hamburg, 15 cs.
Old Master Paper & Pulp Corp., Hamburg, Hamburg, 77 cs.

KRAFT PAPER

Wilkinson Bros. & Co., Inc., Bergensfjord, Moss, 53 bls.

SULPHATE PAPER

Insight Paper Co., Bergensfjord, Frederickstad, 186 rolls.

STENCIL PAPER

Arlac Dry Stencil Co., Hamburg, Hamburg, 51 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Pennland, Antwerp, 24 cs.
Hensel Bruckman & Lorbacher, Hamburg, Hamburg, 4 cs.

BARYTA COATED PAPER

Globe Shipping Co., G. Washington, Bremen, 26 cs.

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F. Murray Hill, G. Washington, Bremen, 5 cs.

TRACING PAPER

Globe Shipping Co., G. Washington, Bremen, 18 cs.

SILK PAPER

Meadows Wye & Co., Coahoma County, Rotterdam, 15 cs.

PHOTO-PAPER

Burroughs Wellcome & Co., American Banker, London, 2 cs.
J. J. Gavin, Carinthia, Liverpool, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Carinthia, Liverpool, 21 cs. (simplex).
B. F. Drakenfeld & Co., Carinthia, Liverpool, 5 cs. (duplex).
L. A. Consmiller, G. Washington, Bremen, 14 cs.
C. W. Sellers, G. Washington, Bremen, 16 cs.

COLORED PAPER

E. Daiber, Pennland, Antwerp, 5 cs.
E. Deitzgen & Co., Hamburg, Hamburg, 98 cs.

ENVELOPES

Tice & Lynch, Caronia, London, 2 cs.

WRITING PAPER

Japan Paper Co., Pres. Hayes, Marseilles, 10 cs.
F. L. Kramer, Caronia, London, 3 cs.
J. E. Bernard & Co., Leviathan, Southampton, 1 cs.
The Eleto Co., Hamburg, Hamburg, 3 cs.
Globe Shipping Co., Waukegan, Havre, 1 cs.
W. J. Byrnes, Waukegan, Havre, 1 cs.
Coenca Morrison & Co., Ile de France, Havre, 2 cs.
Japan Paper Co., Aquitania, Southampton, 17 cs.
J. E. Bernard & Co., Aquitania, Southampton, 10 cs.
L. Cortelli, Pr. Hayes, Genoa, 5 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Caronia, London, 5 cs.
J. Manheimer, Homeric, Southampton, 42 bls., 1 cs.

STRAW PULP

F. C. Teipel & Co., Coahoma County, Rotterdam, 5 bls.

MISCELLANEOUS PAPER

Tice & Lynch, Caronia, London, 2 cs.
F. C. Strype, Caronia, London, 5 cs.
Standard Products Corp., La Savoie, Havre, 128 cs.
Fezandie Sperrle, La Savoie, Havre, 1 cs.
Perry Ryer & Co., Caledonia, Glasgow, 80 cs.
M. Snedeker Corp., Hamburg, Hamburg, 18 cs.
Arkell Safety Bag Co., Gripsholm, Gothenburg, 56 rolls.
M. M. Cohen, Gripsholm, Gothenburg, 41 rolls, 11 bls.
Crepe Kraft Co., Gripsholm, Gothenburg, 119 rolls.
Globe Shipping Co., Ile de France, Havre, 3 cs.
Guibout freres, Ile de France, Havre, 11 cs.
Keller Dorian Paper Co., Ile de France, Havre, 10 cs.
A. C. Dodman, Jr., Inc., Ile de France, Havre, 2 cs.
G. W. Sheldon & Co., Aquitania, Southampton, 2 cs.
P. J. Schweitzer, Pres. Hayes, Marseilles, 2 cs.

RAGS, BAGGING, ETC.

Chase National Bank, Frederick VIII, Copenhagen, 1,323 bls. rags.
Brown Bros. & Co., Carinthia, Liverpool, 10 bls. rags.
Brown Bros. & Co., Minnetonka, London, 26 bls.
Bank of The Manhattan Co., Caledonia, Glasgow, 137 bls. paper stock.
A. W. Fenton, Inc., Hamburg, Hamburg, 101 bls. rags.
Mutnick Bros., Celtic, Liverpool, 8 bls. rags.
E. J. Keller Co., Inc., Waukegan, Havre, 37 bls. bagging.
E. J. Keller Co., Inc., Waukegan, Havre, 141 bls. rags.
E. A. Stone, Waukegan, Havre, 23 bls. rags.
Castle & Overton, Inc., Waukegan, Havre, 201 bls. rags.
Castle & Overton, Inc., Waukegan, Havre, 126 bls. Bagging.
G. P. Lotterhand, Waukegan, Havre, 4 bls. rags.
D. M. Hicks & Co., Waukegan, Havre, 69 bls. rags.
V. Galaup, Waukegan, Havre, 33 bls. rags.
E. Butterworth & Co., Inc., Conehatta, Belfast, 116 bls. paper stock.
Castle & Overton, Inc., Connehatta, Manchester, 22 bls. rags.
E. J. Keller Co., Inc., Asia, ——, 39 bls. rags.
Phila. Girard National Bank, Asia, Alexandria, 150 bls. rags.
R. Canovai figli, Isonzo, Naples, 179 bls. rags.
E. J. Keller Co., Inc., Isonzo, ——, 168 bls. rags.
N. E. Bergen, Indep. Hall, Havre, 251 bls. waste.
Stone Co., Inc., Sarcoxie, St. Nazaire, 325 bls. rags.
E. Mayer, Sarcoxie, Bordeaux, 88 bls. rags.
The Barrett Co., Sarcoxie, Bordeaux, 316 bls. rags.
E. J. Keller Co., Inc., Sacandaga, Antwerp, 170 bls. flax waste.

OLD ROPE

International Purchasing Co., Bergensfjord, Oslo, 67 coils.
International Purchasing Co., Cabo Santa Maria, Coruna, 31 coils.
New York Trust Co., Hellen, Barcelona, 49 bls.
S. Birkenstein & Son, Isonzo, Oran, 28 bls.

MANILA ROPE

Ellermans' Wilson Line, Minnetonka, London, 54 coils.

CASEIN

Brown Bros. & Co., La Savoie, Havre, 250 bags.
A. Klipstein & Co., Indep. Hall, Havre, 250 bags, 25,137 ks.

WOOD PULP

Waterfalls Paper Mills, Frederick VIII, Oslo, 780 bls. wood pulp.
Buck Kiaer & Co., Inc., Frederick VIII, Oslo, 400 bls. kraft pulp.
H. D. Catty & Co., Coahoma County, Rotterdam, 100 bls. wood pulp, 5 tons.
Castle & Overton, Inc., Coahoma County, Rotterdam, 400 bls. wood pulp, 64 tons.
Atterbury Bros., Inc., Bergensfjord, Oslo, 500 bls. wood pulp.
Waterfalls Paper Mills, Bergensfjord, Sarpsborg, 1,020 bls. sulphite.
Buck Kiaer & Co., Inc., Bergensfjord, Oslo, 800 bls. kraft pulp.
Bulkley Dunton & Co., Hamburg, ——, 90 bls. wood pulp, 18 tons.
Thavenot S. S. Co., Solhavn, Sheet Harbor, 2,216 tons wood pulp.
Johanson Wales & Sparre, Inc., Natirar, Kramfors, 150 bls. sulphite, 25 tons.
Johanson Wales & Sparre, Inc., Natirar Kramfors, 1,800 bls. sulphate, 304 tons.
E. J. Keller Co., Inc., France Maru, Hamburg, 334 bls. wood pulp, 51 tons.

WOOD PULP BOARDS

Fibre Case & Novelty Co., Gripsholm, Gothenburg, 24 bls.
Lagerloef Trading Co., Natirar, Helsingfors, 27 bls., 3 tons.

WOOD FLOUR

F. B. Vandegrift & Co., Coahoma County, Rotterdam, 400 bls., 20,300 kilos.

FILTER PULP

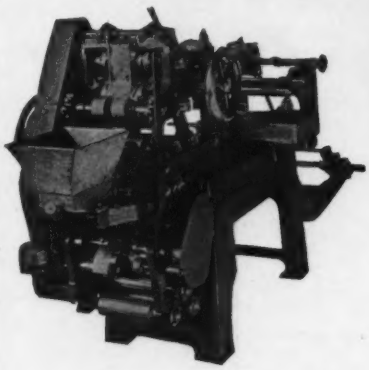
A. Giese & Son, Hamburg, Hamburg, 4 bls.

BALTIMORE IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

Castle & Overton, Inc., Coahoma County, Rotterdam, 1,140 bls. wood pulp, 184 tons.

(Continued on page 68)



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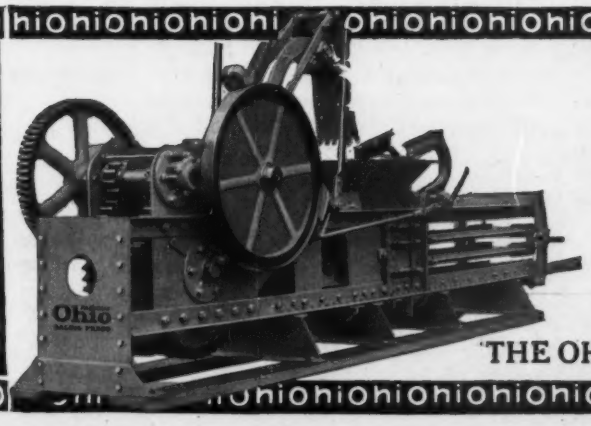

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Imports of Paper and Paper Stock

(*Continued from page 66*)

A. W. Fenton, Inc., Coahoma County, Rotterdam, 164 bls. rags.
W. H. Masson, Conehatta, Belfast, 128 bls waste paper.
E. J. Keller Co., Inc., Beemsterdyk, Rotterdam, 300 bls. wood pulp.
National City Bank, Beemsterdyk, Rotterdam, 245 bls. rags.
National City Bank, Beemsterdyk, Rotterdam, 34 bls. bagging.
National Bank of Commerce, Beemsterdyk, Rotterdam, 29 bls. rags.
Certainteed Products Corp., Indep. Hall, Dunkirk, 253 bls. rags.
Congoleum Nairn Co., Indep. Hall, Dunkirk, 281 bls. rags.
M. W. Pryor, Indep. Hall, Havre, 2 cs. writing paper.
Parsons & Whittemore, Inc., Goettingen, ——, 185 bls. wood pulp.
Parsons & Whittemore, Inc., Goettinger, ——, 270 bls. wood pulp.
E. J. Keller Co., Inc., Boschdyk, ——, 600 bls. wood pulp.

NORFOLK IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

R. W. Hudgins & Son, Coahoma County, Rotterdam, 80 coils rope.
Darmstadt Scott & Courtney, Coahoma County, Rotterdam, 35 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

A. Murphy & Co., London Commerce, London, 6 cs. writing paper.
Phila. Girard National Bank, London Commerce, London, 531 bls. rags.
Koons Wilson & Co., London Commerce, London, 2 cs. drawing paper.
A. H. Searle, London Commerce, London, 325 bls. rags.
S. Spector & Co., London Commerce, London, 53 bls. rags.
Bank of The Manhattan Co., London Commerce, London, 124 bls. rags.
J. Lang Paper Co., London Commerce, London, 237 bls. rags.
Paper Service Co., London Commerce, London, 2 cs. fancy paper.
J. B. Moors & Co., London Commerce, London, 42 bls. rags.
Paper Service Co., Waukegan, Havre, 1 cs. tissue paper.
E. J. Keller Co., Inc., Waukegan, Havre, 82 bls. rags.
Castle & Overton, Inc., Waukegan, Havre, 312 bls. rags.
E. J. Keller Co., Inc., Waukegan, Havre, 176 bls. rags.
E. J. Keller Co., Inc., Waukegan, Havre, 109 bls. bagging.
V. Galaup, Waukegan, Havre, 335 bls. rags.
A. Hurst & Co., Waukegan, Havre, 72 bls. rags.
Katzenstein & Keene, Inc., Waukegan, Dunkirk, 757 bls. rags.
Atlas Waste Manfg. Co., Waukegan, Dunkirk, 118 bls. rags.
E. Butterworth & Co., Inc., Waukegan, Dunkirk, 72 bls. flax waste.
Bank of The Manhattan Co., Boston City, Bristol, 165 bls. rags.
C. B. Richard & Co., Boston City, Bristol, 150 bls. rags.
E. Butterworth & Co., Inc., Boston City, Bristol, 956 bls. rags.
J. A. Steer & Co., Boston City, Bristol, 74 bls. old rope.
J. A. Steer & Co., Boston City, Bristol, 85 bls. waste paper.
Equitable Trust Co., Isonzo, Leghorn, 188 bls. rags.
National City Bank, Isonzo, Oran, 154 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Bordeaux, 111 bls. rags.
Lagerloef Trading Co., Natirar, Helsingfors, 1,016 bls. wood pulp, 203 tons.
Pagel Horton & Co., Inc., Natirar, Ornskoldsvik, 1,200 bls. sulphite, 203 tons.
Pagel Horton & Co., Inc., Natirar, Ornskoldsvik, 7,200 bls. sulphate, 1,219 tons.
Perkins Goodwin & Co., Natirar, Umea, 7,000 bls. sulphate, 1,016 tons.
Johanson Wales & Sparre, Inc., Natirar, Hernosand, 2,040 bls. sulphate, 345 tons.
Johanson Wales & Sparre, Inc., Natirar, Hernosand 450 bls. sulphite, 76 tons.
E. J. Keller Co., Inc., Innoko, Bremen, 33 bls. rags.
E. J. Keller Co., Inc., Caracoli, Havre, 100 bls. rags.

BOSTON IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

Lagerloef Trading Co., Natirar Helsingfors, 170 bls. wood pulp boards, 24 tons.
Pagel, Horton & Co., Inc., Natirar, Ornskoldsvik, 750 bls. sulphite, 127 tons.
Perkins Goodwin & Co., Natirar, Umea, 1,750 bls. sulphate, 254 tons.
Scandinavian Pulp Agency, Inc., Natirar, Gothenburg, 5,080 bls. kraft pulp, 1,016 tons.
Scandinavian Pulp Agency, Inc., Natirar, Gothenburg, 2,286 bls. sulphite, 457 tons.

NEW ORLEANS IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

E. J. Keller Co., Inc., E. Luckenbach, 400 bls. bagging.

CHARLESTON IMPORTS

WEEK ENDING SEPTEMBER 10, 1927

E. J. Keller Co., Inc., Columbian, ——, 450 bls. bagging.

Bates Valve Bag Corp. Forms Foreign Unit

To handle its business abroad, the Bates Valve Bag Corporation, manufacturer of paper valve bags and filling machines for packing cement and other rock products, has segregated its foreign operations in the hands of the Bates International Bag Company, a newly organized corporation.

The corporation has transferred to the new company the stocks of certain foreign corporations, formerly subsidiaries, and has received in part payment for these stocks $200,000 par value of the preferred stock of the new company.

James d'A. Clark Returning for Visit

Word has been received from James d'A. Clark who spent a year in this country a short while ago studying the engineering of paper manufacture on a Sir Robert Blair scholarship of the University of London, that he is planning to return for a six weeks' visit to Canada and United States.

He is sailing from England on the Mauretania on September 17 and plans to attend the meeting of the Technical Association of the Pulp and Paper Industry at the Chemical Exposition September 28, and also to be at the fall meeting in Middletown, Ohio, October 5, 6, and 7. All of Mr. Clark's friends which he met while here will be delighted to see him.

New Catalog on Material Handling Equipment

The Lakewood Engineering Company, of Cleveland, Ohio, have just issued a new catalog giving complete details of material handling in industrial plants, terminals, and warehouses through the use of storage battery tier-lift trucks. Besides the standard units there are a number of special types of trucks shown for meeting unique problems that arise in industrial handling.

The catalog is generously illustrated throughout showing methods of reducing costs in storage and interplant transportation. Those interested in securing a copy will please ask for "Storage Battery Tier-Lift and Tractor," Bulletin No. 35-A.

Installing Second Fourdrinier at Columbia

PORTLAND, Ore., August 26, 1927.—The second largest paper making machine being installed in the Columbia River Paper Mills Company's plant at Vancouver, Wash., will be completed and in operation within thirty days, according to W. B. DuBois, vice-president of the company. The capacity of the plant will then be 70 tons daily, an increased of 60 per cent.

The foundation for a new warehouse and finishing room 60 x 160 feet which is under construction at the east end of the main building, is nearly completed at a cost of $14,000.

An Interesting Exhibit

One of the most interesting exhibits at the Graphic Arts Exposition now being held at the Grand Central Palace, New York, is that of the Harris-Seybold-Potter Company, of Cleveland, Ohio. At this attractive booth, the A B C of offset lithography is demonstrated, including progressive steps from sketch to finished product.

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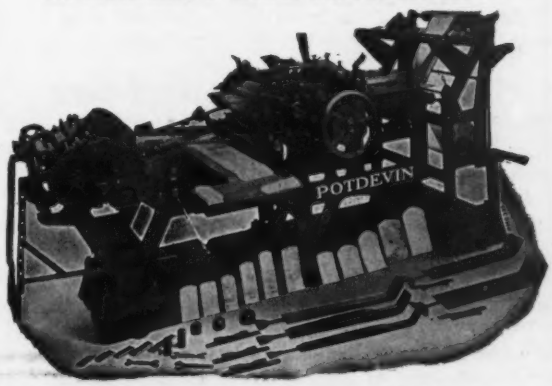

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New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, September 14, 1927.

Trading in the local paper market continues to improve and the outlook for the closing months of the year is promising. Demand for the various grades of paper is more active at present than for some time. Prices are steady to firm and reports of concessions are infrequent. The vacation period has practically ended and the sales forces of the leading paper houses are beginning a strenuous autumn campaign.

Demand for news print is improving. With the busy shopping season approaching, advertising is expanding, and the newspapers are beginning to increase their sizes materially. Many publishers are engaged in replenishing their stocks in order to take care of future requirements. Quotations are still holding up to schdule and there is a little talk of shading.

The box board market is exhibiting unusual strength and prices are decidedly firmer. Consumption is increasing and production is being accelerated to keep pace with the prevailing demand. The position of the fine paper market is sound and quotations are holding up to former levels. Conditions in the coarse paper market are satisfactory and the demand for wrapping paper is excellent.

Mechanical Pulp

Contract withdrawals of both imported and domestic ground wood are moving in a normal manner. Production has been heavy of late and with new business scarce, quotations have been easier. However, it is believed that the market will become more lively in the near future when consumers will be in a position to replenish their stocks.

Chemical Pulp

Some improvement has been noticed in the chemical pulp market. Demand for both the imported and domestic grades is more active and, in the opinion of many observers, the trend of the market will be firmer during the next few months, at least. Quotations are about as low as they will reach and advances are anticipated in the near future, when the demand begins to expand.

Old Rope and Bagging

Foreign and domestic old rope is in persistent request and manila rope, in particular, is displaying considerable strength. Prices are generally steady to firm. Most of the grades of bagging are in moderate demand. Gunny bagging is moving in good volume and prices are holding up to previous levels.

Rags

No radical changes have transpired in the rag market of late. Imported rags are said to be arousing a little more interest but prices abroad are still considered to be rather high. There is some inquiry for dark cottons and linsay garments. The domestic rag market is practically unchanged. The different grades of roofing rags remain steady, in most instances.

Waste Paper

The paper stock market continues buoyant and the recent advances registered are generally being well maintained. Offerings are still reported to be rather restrictd. Strictly folded news is firmer and is now selling at from .70 to .75. An advance has also been recorded on No. 1 mixed paper, which is now quoted at from .65 to .70.

Twine

Conditions in the twine market are satisfactory for the season. Demand is gradually improving. While prices remain unchanged, dealers are very firm in their views, and there is not much talk of concessions. When the request for wrapping paper improves to any extent, it is predicted that twine quotations will advance, as the present level is considered to be too low by many competent authorities.

Union Bag Forms Utility Subsidiary

As a move toward further economies in production and safeguarding its supplies of raw materials, the Union Bag and Paper Corporation through a newly formed subsidiary, Union Bag and Paper Power Company, is acquiring hydro and steam electric power properties on the Hudson River at Hudson Falls, N. Y., and deep-water frontage in Tacoma, Wash., upon which it will erect a modern kraft pulp mill to cost approximately $2,200,000.

The financing of these developments has been arranged through a group consisting of Halsey, Stuart & Co., Hodenpyl Hardy Securities Corporation and Hambleton & Co. It is understood that the financing will total $3,000,000 and will consist of first mortgage 6 per cent bonds maturing in five years. The bonds are to be secured by a first mortgage on both the Hudson River power project and the Tacoma kraft plant. They will also be guaranteed principal, interest and sinking fund by the parent company, Union Bag and Paper Corporation, which is now the largest producer of paper bags in the United States, its annual gross sales in the last five years having exceeded $10,500,000.

Public offering of the bonds is expected within the next two weeks.

Paper Salesmen to Hold Golf Tourney

The New York Division of the Salesmen's Association of the Paper Industry has planned a very fine day of golf, etc., for its members. Members from other divisions and guests are also cordially invited.

The Tournament will be held on Friday, September 23, at the Leewood Golf Club, Bronxville, New York. Arrangements will be made for both lunch and dinner, and for two rounds of golf for all those who wish to make it a day. Only the afternoon round, however, will count for the Association Tournament.

Further details may be obtained by communicating with E. T. Simpson, chairman of the golf committee, at 18 East 41st street, New York.

Carton Packaging Committee To Meet

CHICAGO, Ill., September 12, 1927.—A meeting of the General Carton Packaging Committee, which is made up of both paper manufacturers and merchants, will be held at the Congress Hotel, Chicago, on Monday, October 24. The committee will have before it further reports on investigation of the use of fiber cartons for the shipment of various grades of paper. The chairman of the committee is Kimberly Stuart, of the Neenah Paper Company, Neenah, Wisconsin, and the secretary is Dr. Hugh P. Baker, of the American Paper and Pulp Association.

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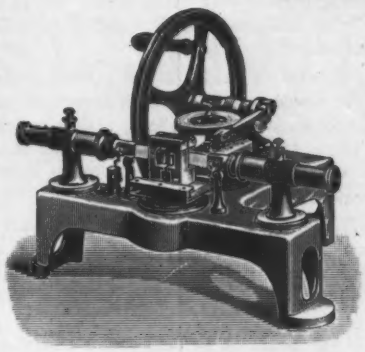

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FOR PAPER MILLS

NEW CUTTINGS

THE LESHNER PAPER STOCK CO.

INCORPORATED

HAMILTON OHIO,

BRANCH—CLEVELAND, OHIO

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, September 14, 1927.

Satisfactory conditions prevail in the local chemical market. Contract withdrawals, which were well maintained throughout the summer months, are growing in volume, and the demand for immediate requirements is very encouraging. Inquiries for future business are numerous and increased activity is anticipated during the closing months of the year. Prices are steady to firm and there is little talk of concessions reported.

BLANC FIXE.—The position of the blanc fixe market is sound and both the pulp and the powder are in excellent request. Quotations remain unaltered and the schedule is being maintained in a satisfactory manner. The pulp is still selling at $60 per ton, in bulk, while the powder is quoted at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Contract withdrawals of bleaching powder are moving in excellent volume. Consumption is gradually expanding up to schedule without difficulty. Bleaching powder is quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CASEIN.—Business in the casein market was rather quiet during the past week. Judging by the number of inquiries coming in, however, trading should become more lively in the near future. Prices remain unaltered. Domestic casein is selling at from 17 cents to 18 cents a pound. Imported casein is quoted at from 18 cents to 18¼ cents a pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness continues to prevail in the caustic soda market. Shipments against contract are going forward in heavy volume and the future outlook for this product is promising. Prices are holding up to schedule. Solid caustic soda is still quoted at from $3 to $3.10 per 100 pounds, in large drums at works. Spot car lots are selling at from $3.20 to $3.25 per 100 pounds. The flake and the ground are quoted at around $3.50 per 100 pounds.

CHINA CLAY.—The china clay market is exhibiting a strong undertone. Demand for both imported and domestic paper makers' clay is growing and a good fall movement is anticipated. Prices remain unchanged. English china clay is selling at from $15 to $25 a ton, ship side. Domestic washed clay is quoted at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 a ton.

Chlorine.—Consumption of chlorine is proceeding in excellent volume. Shipments against contract are moving at a steady pace. Stocks are rather limited and prices are steady to firm. Chlorine is still selling at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound.

ROSIN.—Most of the business transacted in the rosin market during the past week was along routine lines. More active conditions are looked for, however, in the near future. Prices are still inclined to fluctuate slightly. At the naval stores, the grades of gum rosin used in the paper mills are selling at from $10.35 to $10.50 per 280 pounds, in barrels, ship side. Wood rosin is still quoted at $9.50 per 280 pounds, southern shipping points.

SALT CAKE.—Trading in the salt cake market is gradually becoming more active. Offerings of this product are rather scarce and, with manufacturers well sold ahead on contract, spot prices are very firm. Salt cake is quoted at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is still selling at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—The position of the soda ash market is practically unchanged. Demand is fairly persistent and contract shipments continue to move into consumption at a normal rate. Prices are holding up to schedule. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.20; in bags, $1.32½, and in barrels, $1.57½.

STARCH.—Demand for starch is being well maintained and a good volume of orders are being booked. Despite advances in the cost of raw materials, prices remain unaltered. Production is being maintained in ample capacity to take care of current requirements. Special paper makers' starch is quoted at $3.07 per 100 pounds, in bags, and at $3.24 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Manufacturers of sulphate of alumina report no changes of immediate importance. Demand is about normal for the season and prices remain unchanged at the previously quoted levels. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.45 per 100 pounds. The iron free is selling at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Conditions in the sulphur market are unchanged. Contract withdrawals are proceeding in a routine manner and, now that the holidays are practically over, more activity is anticipated from now on until the end of the year. Sulphur is still selling at from $18 and $19 a ton, in bulk, at mine, according to quantity. The spot quotation remains unaltered at $20 per ton.

TALC.—The talc market pursues the even tenor of its way and normal conditions continue to prevail. Offerings of this product are in sufficient volume to take care of current requirements. Prices are holding up to the levels which have been maintained for some considerable time past. Quotations on domestic talc range from $16 to $18 a ton at eastern mills. French talc is quoted at from $18 to $22 a ton, ship side.

New England Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 12, 1927.—The Brown Company, of 80 Federal street, Boston, Mass., announce that Karl H. Ways, formerly in charge of the Boston sales office of the Claremont Paper Company and the Groveton Paper Company, is now associated with the Boston office of the Brown Company, in the Paper Sales Division.

The Poinier-Carmer Company entertained about thirty box makers at the Unicorn Country Club, Stoneham, Mass., Thursday, September 8. The affair was a very enjoyable one, and favored by fair weather. Guests arrived at nine o'clock in time for a round of golf. After luncheon there was another round.

Charles Addoms, treasurer of the National Paper Trade Association, will be the speaker at the meeting of the New England Paper Merchants Association, to be held at the Harvard Club of Boston, September 15.

F. F. Spaulding, president of the Spaulding and Tewksbury Company, has gone to the Pacific Coast, expecting to be away for about a month.

Frank Juckett, president of the Old Colony Envelope Company, Westfield, Mass., Charles A. Barr and Walker Holmes, of the Associate Mills, Holyoke, Mass., Gordon Blanchard, of the Crocker-McElwain Company, the same city, Mr. Feeley, of the Strathmore Paper Company, Mittineague, Mass., and E. J. Smith, of the United Paper Board Company, New York, called on the trade here last week.

Edward D. Bement, manager of the Boston branch of the Charles A. Esty Paper Company, has returned from a two weeks' vacation on Cape Cod.

Several members of the Boston paper trade have attended the National Graphic Arts Exposition in New York.

Ball Bros. Box Plant Addition

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 10, 1927.—An addition to the big box factory of the Ball Brothers Manufacturing Company at Muncie, Ind., glass jar manufacturers, has been started, the plant to be completed about October 1. The addition with new and modernized equipment will enable the company to increase its paper box production to about 100,000 a day.

The company owns two paper mills which supply it with sufficient raw material to be used in the manufacture of the cartons for shipping fruit jars.

The output of the paper mills is too large for the present equipment of the box factory to handle and the addition was decided on in order to utilize to the fullest the output of the mills.

THE PULP BUYER

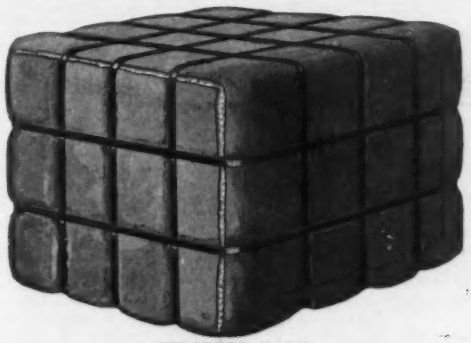
WILL TELL YOU WHY

Fidalgo System Dried and Shredded Pulp (Air Dried)

IS THE ANSWER

Units 10 to 75 ton daily capacity
Producing a compact air dry bale (suitable rail and water shipment 40-45 cu. ft. per ton) of ***shredded*** pulp.
Higher test than when dried on cylinder machines.

33 1/3 SAVING AT BEATER



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GENERAL ADVANTAGES

No Mechanical Pressure used until dry—upon cutting straps at Beater entire bale allowed to absorb rapidly. No surface pressure on wet pulp during drying process. Only current of warm dehydrated air, produces a product that has its surface pores wide open for ready absorption in Beater and produces a pulp testing from 10 to 30 points higher than any pulp dried in sheet form.

LABOR, STEAM, POWER, ETC.

LESS LABOR than any cylinder or mechanical pressure dryer.
Less than 3.500 lbs. steam required (either live or exhaust) per ton air dried pulp, with economizer pulp can be dried with waste stack gases.

CLEANLINESS

Pulp being dried in closed insulated compartment—FIDALGO SYSTEM produces cleaner pulp.

USERS

Eight installations in United States and ten on order or under construction.
Your inspection invited.

COST

Less than any Drying Method we know of to install.

Write Us for Particulars

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ST. REGIS PAPER COMPANY

Daily Capacity 425 TONS

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Finest Facilities in Central Territory

We manufacture all grades of Quality Box Board, specializing particularly in Patent Coated Boards. With a capacity of 125 tons daily, we meet the largest requirements promptly. Inquiries are invited.

STANDARD PAPER COMPANY
KALAMAZOO MICHIGAN

A. J. BRADLEY MFG. COMPANY
Oiled Stencil Board

Lamp Shade Parchment
IN A VARIETY OF GRADES AND COLORS
101 BEEKMAN STREET NEW YORK

PUMPS

For Every
Pulp and Paper Mill Purpose
Let Us Help Solve Your Problems
LAWRENCE MACHINE CO., Lawrence, Mass.

Appleton
Felts and Jackets

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	79	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	94	98
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	102	104
Escanaba Paper Serial, 6s 1926-39	94	96
Filer Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	95	100*
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.), 7s 1937	104	106
Gilbert Paper Co., 6½s 1926-29	89	...
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	94	96*
Itaska Paper, 1st 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	103½	105
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	103	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Poland Paper, 7s 1930	98	...
Port Alfred Pulp, 6½s 1943	*96	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	95½	98*
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	95	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	Wanted	...
Whitaker Paper, 7s 1942	106	108
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper, 8% Pfd.	100	None
Am. Tissue Mills, 7% Pfd.	95	100
British Columbia P. & P., Pfd.	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	105	...
Diem & Wing, 7% Cum. Pfd.	87	...
Donnaconna Paper, Com.	58	...
Donnaconna Paper, Pfd.	99	None
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper (new)	62	65
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	80	85
Midwest Box Co., Pfd. 6%	55	65
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	170	...
Oxford Paper Co., Pfd.	175	...
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company (Ex. Rights)	68	72
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	None
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	52	57
West Virginia Pulp and Paper, Pfd.	100½	102½
Whittaker Paper, 7% Cum. Pfd.	97	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.75	@ 5.25
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	50.00	@52.50
Straw	53.50	@57.50
Chip	47.50	@50.00
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip	57.50	@60.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	27.00	@30.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.50	@ 4.50
Easy Bleaching	2.85	@ 3.10
No. 1 strong unbleached	2.50	@ 2.75
Mitscherlich unbleached	2.65	@ 3.40
No. 2 strong unbleached	2.40	@ 2.55
No. 1 Kraft	2.65	@ 2.90
No. 2 Kraft	2.50	@ 2.60
Sulphate—		
Bleached	3.75	@ 4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.85	@ 3.05
News Sulphite	2.50	@ 2.70
Mitscherlich	3.25	@ 3.70
Kraft (Domestic)	2.70	@ 3.40
Soda Bleached	3.25	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.50	@12.00
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.25	@10.75
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.50	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.00	@ 5.50
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.75	@ 6.50
Miscellaneous	4.75	@ 5.25
White, No. 2—		
Repacked	3.25	@ 3.75
Miscellaneous	2.75	@ 3.00
St. Soiled, White	2.50	@ 2.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.60	@ 1.70
No. 1	1.60	@ 1.70
No. 2	1.35	@ 1.45
No. 3	1.25	@ 1.35
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.75	@ 8.50
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.00	@ 7.75
No. 2 White Linens	5.25	@ 6.00
No. 3 White Linens	4.00	@ 4.50
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.70	@ 1.75
Dark Cottons	1.55	@ 1.60
Shoppery	1.50	@ 1.55
French Blues	2.25	@ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.80	@ 1.90
Domestic	1.80	@ 1.90
Wool Tares, light	1.60	@ 1.70
Wool Tares, heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.50	@ 1.65
Manila Rope—		
Foreign	3.25	@ 3.75
Domestic	4.25	@ 4.75
New Burlap Cut	3.00	@ 3.25
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.50
Hard, White, No. 2	2.75	@ 2.90
Soft, White, No. 1	2.85	@ 3.00
Flat Stock—		
Stitchless	1.25	@ 1.35
Overissue Mag.	1.25	@ 1.35
Solid Flat Book	1.25	@ 1.35
Crumpled No. 1	.85	@ .95
Solid Book Ledger	1.90	@ 2.10
Ledger Stock	1.55	@ 1.65
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.80	@ .90
Container	.65	@ .75
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	2.10	@ 2.20
News—		
No. 1 White News	1.70	@ 1.80
Strictly Overissue	.75	@ .85
Strictly Folded	.70	@ .75
No. 1 Mixed Paper	.65	@ .70
Common paper	.35	@ .45

Well equipped for the schooi of hard knocks

Every Jenkins Valve that leaves the factory is equipped to make good in maximum service, not merely the average—to withstand the hard knocks of severe usage.

Engineers by the hundred throughout the country know the Jenkins "Diamond," and standardize on valves bearing this mark. They know that a genuine Jenkins is a valve well made from the best metals, designed to provide strength where strength is needed, and tested to allow a wide safety margin.

Jenkins Valves are made in bronze and in iron, and furnished in standard, medium and extra heavy patterns. They are obtainable at supply houses everywhere.

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133 No. Seventh St.....Philadelphia, Pa.
646 Washington Boulevard....Chicago, Ill.
JENKINS BROS., Limited
Montreal, Canada London, England

Always marked with the "Diamond"
Jenkins Valves
SINCE 1864

Maintains your high standards -yet reduces your costs

ALPHA
FIBRE
for the making of fine paper

Alpha takes the place of many grades of rags in paper making. It is clean, more economical and can be used without sacrifice of quality.

Also, papers hitherto made without rag stock, can be brought to the high quality goal, by adding Alpha to the furnish in suitable proportions.

WRITE FOR PARTICULARS

BROWN COMPANY
founded 1852
PORTLAND, MAINE

Sulphur

A FIRST REQUISITE

IN

Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
41 E. 42nd Street New York City
Mine Gulf, Matagorda County, Texas

WE WILL BUY

American Writing Paper Company 6s	@ 83
Abitibi Power & Paper Co. 6s, 1931	@100
Advance Bag & Paper Co. 7s, 1943	@104¾
Central Paper Co. 7s, 1933	@ 86
Filer Fibre Company 7s	@ 94
Great Northern Paper Company	@ 71½
Oxford Paper Co. 6s, 1947	@103¾
St. Regis Paper Co. 6s, 1931	@100
Ticonderoga Pulp & Paper Co. 6s, 1940	@ 99½
Warren (S.D.) 6s, 1945	@102½
Whitaker Paper Co. 7s, 1942	@107
West Virginia Pulp & Paper Co. Pfd.	@101

WE WILL SELL

Cady Lumber Company 6½s	@ 93½
Donnacona Paper Co. Common	@ 75
Filer Fibre Company 7s, 1935	@ 96¼
Great Northern Paper Company	@ 74
Hoberg Paper & Fibre Co. 7s, 1937	@ 96
Marinette & Menominee Paper Co. 7½s 1936	@104
West Virginia Pulp & Paper Pfd.	@103

H. D. KNOX & CO.

44 Broad St., N. Y. 27 State St., Boston

Inquiries invited on all Paper Pulp Lumber Securities

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.28	@	.29
No. 2	.26	@	.27
No. 3	.24	@	.25
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	45.00	@	47.50
Solid News	47.50	@	—
Manila Line Chip	55.00	@	57.50
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¼
No. 1 Kraft	.06	@	.06¾
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	45.00	@	50.00
Chip Board	40.00	@	42.00
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	2.25
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.65
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.25	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.25	@	1.30
No. 2 Books, light	.80	@	.85
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.15	@	1.20
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.50	@	.60
No. 1 Mixed Paper	.50	@	.60
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.90
Old Newspaper	.60	@	.65

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	.03½	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	03	@	.03¾
New Canvas	.08	@	.09
New Black Mixed	.05	@	.05½

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02½	@	.03
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.37½	@	—
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05¾	@	.06½
No. 2 Kraft	.04¾	@	.05¾
Common Bogus	.02	@	.02½
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s			53.50
Filled News Board			50.00
Chip Board			47.50
Single Manila Pulp lined board	57.50	@	62.50
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
No. 2 Hard White	2.60	@	2.90
White Blank News	1.75	@	—
Manila Env. Cuttings	2.00	@	2.25
No. 1 Soft White	2.85	@	3.00
No. 1 Soft White	2.75	@	3.00
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.95	@	2.00
No. 1 Books, Heavy	1.35	@	1.45
No. 1 Books, Light	—	@	1.15
Old Kraft	2.05	@	2.25
No. 1 Old Manila	1.40	@	1.60
No. 1 Mixed Paper	.55	@	.65
Print Manila	.70	@	.80
Overissue News	.80	@	—
Old Newspapers	.65	@	—
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.75	@	—
Domestic	1.50	@	1.60
Manila Rope and Strings—			
Foreign	3.50	@	3.75
Domestic	4.25	@	4.37½
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.50	@	1.75
Wool Tares, heavy	1.40	@	1.60
New Burlap Cutting	2.15	@	2.25

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.11¼	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.10	@	.10½
Fancy	.05¾	@	.06
Washable	.04½	@	—
Cottons—According to Grades—Blue—			
Blue Overalls	—	@	.07
New Black, soft	.04	@	.04¼
Khaki Cuttings	.05	@	.05½
Corduroy	.03	@	.03½
New Canvas	.09	@	.10

Domestic Rags (Old)

(Price f. o. b. Boston)

White No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.12½	@	2.37½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.45	@	1.55
No. 2	1.33	@	1.43
No. 3	.96	@	—
No. 4	1.10	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	25.00	@	27.00
Sulphite easy bleaching	58.00	@	60.00
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	75.00	@	80.00
Sulphate			65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.52½
No. 1 Mixed Paper	.55	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.06	@	.06¾

WANT AND FOR SALE ADVERTISEMENTS

HELP WANTED

CHEMICAL ENGINEER WANTED for large pulp and paper mill. Graduate of University, Canadian preferred. Give particulars of age and experience. Address, Box 27-529, care Paper Trade Journal. S-29

OPPORTUNITY for technically trained executive familiar with Kraft Pulp making. State education and experience and send copies of references with first letter. Address, Box 27-487, care Paper Trade Journal. S-15

WANTED—BEATERMAN: A good, sober steady man for container board mill, two towers. Good position and wages to proper party. Address, Box 27-506, care Paper Trade Journal. S-15

PAPER TRADE readers find our Service effective in making connections. Individual. Confidential. Personally planned by Jacob Penn, known by all mill owners. Not agency. Jacob Penn, Incorporated, 9 Park Place, New York. tf.

WANTED—First-class Fourdrinier machine tender on high grade papers. Must be steady and reliable. Excellent living conditions. Address, Box 27-505, care Paper Trade Journal. S-15

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established sixteen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

SUPERINTENDENT WANTED for mill in New England making tissue and light weight, straight and creped. Must be well up on fast running tissue, not over 40 years old, and well recommended. Knowledge of wood grinding also desired. Address, Box 27-514, care Paper Trade Journal. S-15

WANTED IMMEDIATELY—Tour boss for strawboard mill. Must have experience in .009 strawboard for corrugating. Apply, giving full particulars as to experience and wages required, to the EASTERN PAPER & FELT MILLS CORPORATION, Room 414, Quebec Power Building, QUEBEC, P. Q., CANADA. S-22

SUPERINTENDENT for two-machine mill; Fourdriniers making light weight chip. Must be well up on getting production; repairs, maintenance, designing and new construction; a man able to handle help and get results. State age, experience, reference and salary expected. Only those answering above requirements need apply. Addrss, Box 27-527, car Paper Trade Journal. S-22

CHEMIST WANTED for large pulp and paper mill. Graduate of University, Canadian preferred. Give particulars of age and experience. Address, Box 27-528, care Paper Trade Journal. S-29

WANTED—An experienced adjuster on a Lockport machine, both flat and square; also on a Potdevin S O S. State experience and salary expected. Steady position for the right man. All communications will be held strictly confidential. Address, Box 27-502, care Paper Trade Journal. tf.

WANTED—First-class modern boss finisher for mill making sulphite bond and specialties. Must be able to handle help and work to a system. Address, Box 27-533, care Paper Trade Journal. S-29

SITUATIONS WANTED

MILLWRIGHT POSITION WANTED—Man with 17 years experience in paper plants. A first-class machinist; good draftsman; understands maintenance and construction, layout work and costs. References. Address, Box 27-530, care Paper Trade Journal. S-29

SITUATIONS WANTED

FELT SUPERINTENDENT—Ten years with representative mill making dry felt and asbestos. Desires change. Capable of getting production and quality. Best references. Address, Box 27-523, care Paper Trade Journal. tf.

ASSISTANT SUPERINTENDENT — College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

MAN, 32 years of age, thoroughly experienced, mill superintendent or assistant. Expert on all grades of boards, cartons and shipping containers. Will consider selling. Address, Box 27-517, care Paper Trade Journal. S-15

PAPER MAKING MACHINERY DESIGNER AND GENERAL PLANT ENGINEER open after September 1st. Long and practical experience on this class of work, together with a number of years selling experience. Address, Box 27-497, care Paper Trade Journal. tf.

PULP AND PAPER MILL ENGINEER, with many years experience in design, construction and maintenance, desires position. References. Address, Box 27-470, care Paper Trade Journal. O-6

TOUR BOSS wishes position. Experienced on most all kinds of paper, also glassine and greaseproof. Address, Box 27-433, care Paper Trade Journal. S-22

GROUND WOOD SUPERINTENDENT desires position. 20 years practical experience making pulp in up-to-date mills. Can furnish excellent references. Address, Box 27-499, care Paper Trade Journal. S-15

SUPERINTENDENT wants position. A practical man on all kinds of board specialties and combination boards. Am good on repairs and maintenance; good handler of help; can get results. Am a hustler. Best of reference. Address, Box 27-518, care Paper Trade Journal. S-22

MILL CONNECTION WANTED—Capable experienced salesman desires mill connection. Years of experience in the sales of both coarse and fine paper. Willing to travel. Highest credentials as to ability and integrity. Address, Box 27-490, care Paper Trade Journal. tf.

POSITION WANTED as paper mill manager or production engineer. Extensive experience on rag and wood pulp papers. Services available at once. Can furnish best of references. Address, Box 27-503, care Paper Trade Journal. tf.

MILL OR PRODUCTION MANAGER—Now superintendent of a well known mill, but want to make a change. A splendid business and paper making experience with an excellent production record. Well educated. Address, Box 27-501, care Paper Trade Journal. S-22

AGGRESSIVE PAPER SALESMAN, of executive ability and wide experience in the manufacture and sale of high-grade Book Papers—coated, uncoated and specialties—wishes to locate with Mill manufacturing book papers as direct representative with opportunity for advancement. Ten years Mill and Jobbing experience and knows book papers intimately, and can introduce new grades and highly profitable specialties. Wide acquaintance with both merchant and converter trade. Would also consider position as sales manager at mill. Highest credentials. Those having a proposition that offers a real opportunity for a high grade man, please address, giving full particulars, Box 27-495, care Paper Trade Journal. S-29

SUPERINTENDENT WISHES POSITION—Long experience on high grade papers. Book, news, hanging; specialties in white and colors. References. Address, Box 27-531, care Paper Trade Journal. S-29

CREDIT MANAGER-BOOKKEEPER: Young man, seven years experience with large paper concern, desires new connection with opportunity for advancement. Address, Box 27-532, care Paper Trade Journal. S-22

SITUATIONS WANTED

MACHINE TENDER—Board machine tender, age 30 years, married, sober. Well up on all grades of box boards and container. Can furnish reference. Available at once. Address, Box 27-491, care Paper Trade Journal. S-22

PAPER MILL EXECUTIVE—Young man, with wide practical experience and good education, desires connection as manager or sales manager. Capable to organize and direct production of various grades of paper. Well trained in financial and sales problems. Best of references assured. Address, Box 27-516, care Paper Trade Journal. S-22

BOSS BEATERMAN AND BEATER ENGINEER—Experience on most all grades. 37 years of age; steady. Address, Box 27-536, care Paper Trade Journal. S-15

MILL MANAGER OR SUPERINTENDENT —Made all kinds of board specialties, news and manila wrapping. Can furnish best references. Address, Box 27-534, care Paper Trade Journal. S-22

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke, Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running machines. J-5-27

WANTED—Mill ends and job lots in rolls or flats in any quantity, all grades. Also boards. Joseph Goldstein & Sons, 1302-9 N. Halsted Street, Chicago, Illinois. tf.

WANTED—Side or odd lot rolls ten to ninety pound basis. The larger the quantity the better we like it. Address, Box 27-481, care Paper Trade Journal. tf.

SEND YOUR ODD LOT LIST of coarse and fine papers together with samples to Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

WANTED

WANTED—82" or 92" second-hand Slitter and Rewinder. Must be first class condition. Address, Box 27-510, care Paper Trade Journal. S-15

WANTED—42" to 48" Cameron Winder. Will pay cash for one in good condition. Address, Box 27-524, care Paper Trade Journal. S-15

WANTED—Second hand Slitter approximately eighty inches wide. Address, Box 27-482, care Paper Trade Journal. tf.

WANTED—2 W. & P. Pulpers, 2 Filter Presses and 1 Rogers Wet Machine. Address, Box 27-285, care Paper Trade Journal. tf.

WANTED—Five bowl second hand Calender in good condition, 65 to 70". Address, Box 27-535, care Paper Trade Journal. S-22

GOVERNMENT BIDS

TREASURY DEPARTMENT, Office of the Secretary, Washington, D. C., September 1, 1927.—Sealed proposals will be received by the Secretary of the Treasury, until 11 o'clock a. m., Thursday, September 29, 1927, from manufacturers of bond, bank-note and other fine papers, for furnishing 400 tons, more or less, of paper of the highest quality of the type developed at the Bureau of Standards, containing the distinctive feature prescribed by the Secretary of the Treasury, required for the printing of United States currency, during the period from November 1, 1927, to June 30, 1928. Blank forms for submitting proposals, together with specifications and further information, will be furnished manufacturers who intend to submit proposals, upon application to the Commissioner of the Public Debt, Treasury Department. C. S. DEWEY, Acting Secretary of the Treasury. S-22

HANDLES New York Dump Stock *without sorting*

The usual procedure when using such stock as a furnish is to feed it into the Breaker System almost piece by piece in order to remove all foreign material. With the Shartle Breaker System an entire bale is shoved in, in three or four big chunks at a tremendous saving of time and labor.

Shoes, metal and other foreign materials pass between the new improved steel Brownell Buehler Perforated Backfall and the breaker roll without any injury. They are caught on a special device periodically lowered into the broke tub.

Sand, buttons, clips and smaller refuse, usually carried through to the secondary refining equipment, drop down into the Shartle Settling System.

And the stock passes out practically clean. After operating the Shartle Breaker System with a Shartle Settling System for only four days the Western Board and Paper Company removed 56 wheel-barrow loads of such foreign material. Previous to the installation of the Settling System only 13 wheel barrow loads were removed from the Breaker tub in the same length of time.

Sixty-five mills will tell you that there is nothing to equal the Shartle for good, fast, economical beating. We'll be glad to tell you why.

Shartle Brothers Machine Company
Middletown, Ohio

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

BREAKER SYSTEMS

HELP WANTED

WANTED—Salesman for small New England mill making specialties. Give age, experience and salary wanted. Address, Box 27-540, care Paper Trade Journal. S-22

WANTED—Superintendent for container board mill. Give age, experience and references. Good position to right party. Address, Box 27-545, care Paper Trade Journal. S-15

SITUATIONS WANTED

RELIABLE BEATER ENGINEER—Allround experience bonds, books, envelope, Kraft, tissues; suit all weights, test, etc. Go anywhere. Address, Box 27-543, care Paper Trade Journal. S-22

FINISHING ROOM FOREMAN wants position. Thoroughly experienced in handling bond, glassine, tissues and wrapping papers. Address, Box 27-544, care Paper Trade Journal. S-22

FOR SALE

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf.

FOR SALE—Fully equipped mill at Lambertville, New Jersey; ready to run for light weight papers. Easy terms. Address, Box 27-521, care Paper Trade Journal. S-29

FOR SALE—6 Used Jones Imperial Jordans, with bronze or steel fillings. Will sell "as is" or factory rebuilt. THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y. tf.

FOR SALE

Chuse 28 x 32 engine, arranged for 150 lb. gauge pressure, 150 R.P.M. Equipped with a Crocker & Wheeler 850 KVA, 480 volt, 3 phase, 60 cycle generator without exciter or switch.

A. E. BRIDGE,
Franklin, Ohio. S-22

FOR SALE

2—Iron tub Beaters, practically new. Rolls 70 x 66. Made by Emerson Mfg. Co.

1—Wood tub Beater, practically new. Roll 70 x 66. Made by Emerson Mfg. Co.

1—Heavy duty Beloit 114" Paster.

4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.

1—Dayton Beater and Hoist Iron tub Beater. A-1. Rolls 64" diameter, 54" face.

1—Breaker Roll 64" diameter by 54" face.

1—Downingtown Iron tub Beater with Brownell Buehler perforated back fall. Rebuilt for immediate shipment. Roll 44" x 44".

The Shartle Brothers Machine Co.
Middletown, Ohio tf.

FOR SALE

1—72" Hamblet Single Cutter with 24 roll back stand.
1—84" Beloit heavy duty duplex.
1—84" Black-Clawson heavy duty duplex, with duplex slitter.
1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—60" Hamblet Cutter with 10 roll Backstands.
1—110" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—87" Hamblet Duplex Cutter, Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

PAPER MACHINES

For Sale

In good condition. Immediate delivery.

One 2 cylinder machine. 2 presses; 10 dryers 42" x 84"; one calender; reel; single drum winder; Marshall drive.

One Fourdrinier machine. Wire 96" x 50'. 2 presses; 15 dryers 48" x 94"; one calender; reel; two drum winder; Marshall drive.

By: FRANK H. DAVIS COMPANY
175 Richdale Avenue Cambridge, Mass.

FOR SALE

1—72" Model 10 Cameron.

11—Dryers 48" x 110".

60" trim Black-Clawson Fourdrinier machine.

Several White cedar stuff chests, A-1 shape.

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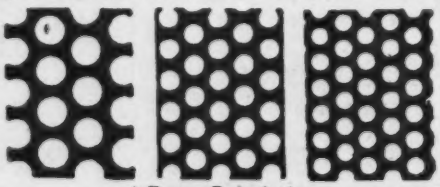

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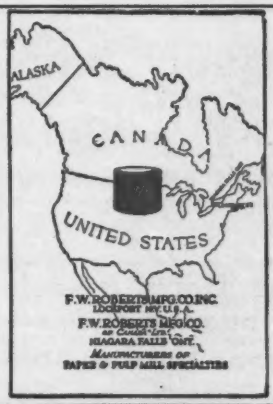

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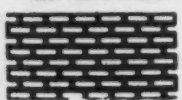

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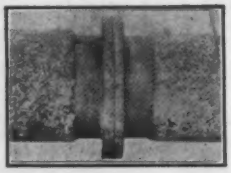

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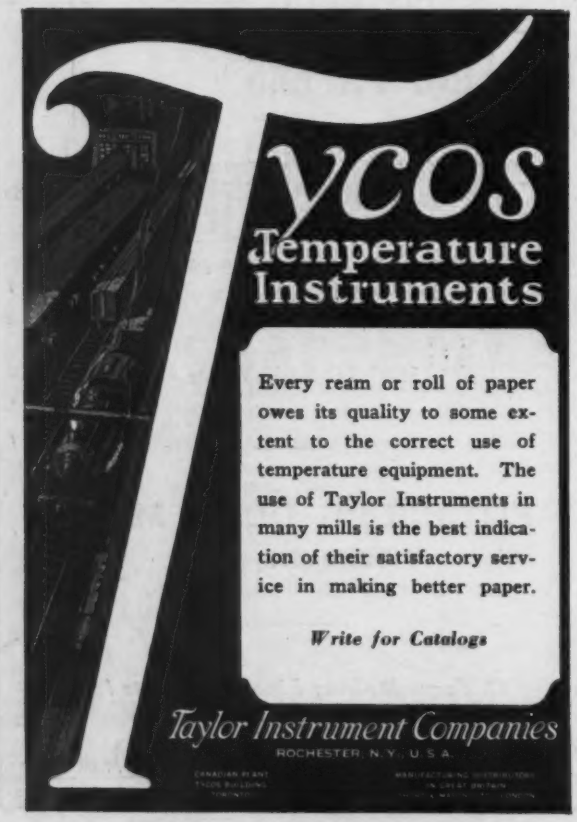
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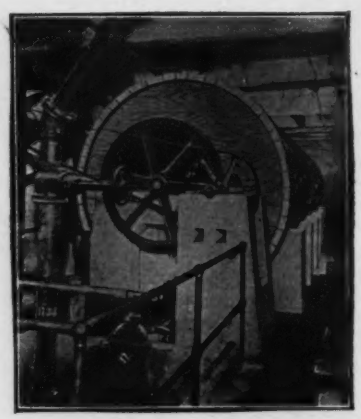

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